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ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC WORKS

OF THE

NORTH-WEST TERRITORIES

1901

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY

REGINA:
JOHN A. REID, GOVERNMENT PRINTER
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DEPARTMENT OF PUBLIC WORKS,
REGINA, January *15th, 1902.*

To His Honour
AMEDÉE EMMANUEL FORGET,
Lieutenant Governor of the North-West Territories.

SIR,—

I have the honour to transmit herewith the Annual Report of the Department of Public Works for the year 1901.

I have the honour to be, Sir,

Your obedient servant,

ARTHUR L. SIFTON,

Commissioner of Public Works.

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DEPARTMENT OF PUBLIC WORKS,
REGINA, *January 13th, 1902.*

ARTHUR L. SIFTON, Esq., M. L. A.,
Commissioner of Public Works.

SIR,—I have the honour to submit the Annual Report of the Department of Public Works for the year 1901.

The increase and extension in the work of all branches of the Department which has from year to year been referred to in the annual reports has again to be noted with reference to the work of the past year; in fact, our work will be found, from information given in this report, to have practically doubled during the year.

This condition is the logical outcome of the marked increase in population and development in all directions which have taken place in the Territories during the year, and it may be expected that the Department of Public Works, in common with other Departments of the Territorial Government charged with duties connected with the many wants of a new and rapidly developing country, will for some years show an annual increase in the work undertaken.

Reference has been made in previous annual reports to the fact that the season during which it is possible to complete road improvements, or other public work involving labour in the open air in the Territories, is short, and that the weather during that season has, therefore, a marked influence upon the success of completing such work.

During 1901 the Territories as a whole experienced a wet season, and while that condition had much to do with the production of the bountiful crop with which all parts of the Territories were blessed, the wet weather seriously retarded our work of road improvements in the earlier part of the year. The weather in the fall fortunately proved exceptionally fine and open, and we were, therefore, enabled to finish many pieces of work that in ordinary seasons would have had to remain over until the following year.

Great difficulty was experienced during last year in obtaining the necessary labourers or teams with which to complete our public works. The spring was wet and the farmers were delayed in getting their crops planted. Continued wet weather delayed haying, and the grain crop proved so heavy that harvesting, delayed as it was by wet weather, continued until late in the season, and the unusual demand for farm help and assistance in threshing operations soon exhausted the available supply of labourers, and rendered it impossible in some districts for us to obtain men or teams at any price to complete works for which money had been voted.

The enormous amount of traffic over our main highways to market centres, which has resulted from the transportation of the large crop to market, has, in many districts, emphasised the necessity for improving these roads, and has directed particular attention to the portions which we were unable to improve last year, either on account of the wet weather or the impossibility of obtaining men or teams to do the work.

The fact, however, that earth roads must of necessity be bad during wet seasons does not seem to be realised by many of the residents of the Territories; nor do they appreciate the fact that the very conditions which render such roads bad preclude to a great extent the possibility of taking any steps to improve them during the continuance of wet weather. This matter has been dealt with at some length in previous annual reports, but attention is again directed to the fact that earth roads, which have no surface of gravel or other material which will shed the rain, and which are not provided with proper drainage, will always be bad roads to travel on in bad weather, and during exceptionally wet seasons will be practically impassable for heavy loads.

The matter of road improvements is more fully dealt with under its proper heading further on in this report, but has been referred to here because it is a matter which has been unusually prominent this year owing to the large influx of immigrants and the enormous amount of teaming required in moving the large crop from the grain fields to market centres.

The applications for public works filed, and the information which we had obtained regarding needed improvements, made it evident in the early part of the year that a large sum would be required to enable the Department to deal with even the more pressing cases. To meet this situation the sum of $258,000 was voted at the session of the Legislative Assembly in May, and of that amount $236,574 was spent to the close of the fiscal year on the 31st ultimo. The balance of the amount voted will be exhausted in paying accounts for work performed or contracted for during the year which were not received before the close of the fiscal year.

The amount expended during 1901 for public works exceeded the expenditure for that service in 1900 by some $60,000, and the increase which has taken place in the public works expenditure since the organisation of the Department in 1898 is graphically illustrated by the following statement:

Expenditure in 1898	$129,046
" " 1899	146,403
" " 1900	175,960
" " 1901	236,574

The increase noted from above statement will serve to illustrate the increased necessities which arise from year to year in the way of needed improvements consequent upon the rapid development of the Territories. It is not, of course, claimed that this increased expenditure has enabled the Department to keep pace with the increasing necessities; the fact being that the work done each year is only that selected from a long list of necessary work, which is considered to be of the most importance. Had the Department been in a position during 1901 to undertake the bulk of public works pressed for, an expenditure of at least $350,000 would have resulted. The details of expenditure on public works during the past year will be found under the section of this report dealing with the Accountant's Branch.

The system which was adopted in the annual reports of the Department for 1899 and 1900 is followed in dealing in a detailed manner with the operations of the Department during the past year, the same subdivision of the work then adopted being adhered to.

CORRESPONDENCE BRANCH.

Staff	1 chief clerk. 2 clerks. 3 stenographers and typewriters.

The rapid extension which has taken place in the volume of the correspondence dealt with by the Department will be noted from the following statement:

Communications received	29,098
" sent	58,005
Irrigation Branch	3,392
Total correspondence dealt with	90,495
Entries in cash advice book	4,053

The volume of correspondence dealt with during last year shows an increase over 1900 of 28,000 communications, or more than fifty per cent., and the daily average of communications dealt with during the year amounted to 294. This large volume of correspondence has proved a serious tax upon our staff, but it has been promptly dealt with from day to day and very little complaint has been made regarding delays in answering letters.

In the two previous annual reports attention was directed to the fact that the volume of correspondence dealt with by a government department is a fair indication of the general work of the department. On the basis of that illustration the increase in the general work of the Department of Public Works during the past year is certainly indicated in a very graphic manner by the correspondence statement given above.

Much of the success which attended our work of dealing with the large mass of correspondence referred to resulted from the card index system which we adopted in 1900, and which was mentioned at some length in last year's report. One great difficulty which is experienced in handling our correspondence results from the practice of many persons, who write the Department, of dealing with several different subjects in the one letter. Such letters have necessarily to be extracted for record on files dealing with each particular subject, causing delay and possibility of mistake. It is, of course, difficult to impress upon the general public the desirability of writing a separate letter regarding each particular subject, but those who give the matter any consideration will readily realise that in an office dealing with several thousand different roads, over thirteen hundred bridges, a large number of ferries, over a hundred wells, some three hundred dams, about six hundred local improvement districts, besides villages, coal mines, irrigation canals and ditches, and many other separate matters, the necessity for keeping the records regarding each separate and complete is only possible when letters dealing with such matters are complete in themselves. Correspondence is the medium through which ninety-five per cent. of the business of the Department is conducted, and the manner in which it is handled has much to do with the success attending Departmental work.

The Coal Mines Regulations Ordinance and The Steam Boilers Ordinance are administered through the Correspondence Branch of the Department, and the work in connection therewith during the past year is therefore dealt with in this section of the report.

THE COAL MINES REGULATIONS ORDINANCE.

Outside staff.... ....1 inspector.

In June last Mr. Dan Evans, who had filled the position of Inspector of Coal Mines since 1897, resigned, and the vacancy thus created was filled in August by the appointment of Mr. Frank B. Smith, B.Sc., M.E., as Inspector, with headquarters at Calgary.

In addition to his duties as Inspector of Coal Mines, Mr. Evans had filled the position of Inspector of Steam Boilers, but the work of coal mine inspection, as was intimated in last year's report, has now become sufficient to engage one man's time throughout the year, and Mr. Smith's duties are limited to inspections under The Coal Mines Ordinance.

Coal mining in the Territories showed marked development last year both in increased output at the mines working during the previous year, and in the number of new mines opened.

The coal mines operated in the Territories during the past year are shown in following schedule :

SCHEDULE of Coal Mines in Operation in the Territories in 1901.

NAME OF MINE	LOCATION	OPERATED BY	CHARACTER OF COAL
Anthracite	Anthracite, Alta	The H. W. McNeill Co., Ltd.	Anthracite.
Black Diamond	Calgary, "	Cooper & McPherson	Bituminous.
Knee Hill	" "	Hunt & Read	"
Canmore	Canmore, "	The H. W. McNeill Co., Ltd.	"
Clover Bar	Clover Bar, "	Lindsay & Daly	"
Hassard	Coalfields, Assa	Souris Coal Mining Co	"
Roche Percee	" "	"	"
Taylor	" "	"	"
New Mine	" "	"	"
Pure Lignite	" "	Knight & Carlson	"
Walsh's	" "	Evan Jones	"
Raith	Edmonton, Alta	Wm. Humberstone	"
Milner	" "	James Milner	"
Clover Bar	" "	Gerard & Fortin	"
Coit	" "	Marsh & Neen	"
Black Diamond	" "	John G. Tipton	"
Humberstone	" "	Wm. Humberstone	"
Baldwin	" "	W. J. Baldwin	"
Bush's	" "	O. H Bush	"
Duncan	Estevan, Assa	P. C. Duncan	"
Soo	" "	H. Yardley	"
Fort Saskatchewan	Fort Saskatchewan, Alta	Leon Moret	"
Frank	Frank, Alta	The Canadian American Coal & Coke Co	"
Lethbridge	Lethbridge, Alta	The Alberta Railway & Coal Co	"
Gillespie	Medicine Hat, Assa	Wm. Gillespie	"
Culley	" "	George Culley	"
Crockfords	" "	Crockford Bros	"
Black	Morinville, Alta	E. Chevigny	"
Sturgeon	Namao, "	Frank Smith	"
North Star	Strathcona, "	Martin Bros	"
Steeves	" "	Burkholder Bros	"
Superior	" "	James McKernan	"

The output of the above mentioned mines during the year as shown by returns filed under the provisions of the Ordinance was as follows:

Bituminous and lignite coal	331,907 tons.
Authracite coal	14,742 "
Total	346,649 tons.

In 1900 the output was 321,279 tons. The operations of 1901, therefore, show an increased output of 25,370 tons.

The rapid development and settlement now taking place in the Territories will doubtless have a marked effect on the output of our coal mines in the near future, and the time is rapidly approaching when the local demand for coal for domestic purposes will of itself materially increase the annual output At present the larger part of the coal mined is used in connection with the operation of our railway lines, or is exported, but the local demand for manufacturing and domestic purposes is rapidly increasing.

The coal measures in the Crow's Nest Pass adjacent to our western boundary, referred to in the last annual report, have in one or two cases been largely developed during the past year, and as a consequence thriving villages have sprung up at Frank and Blairmore on the Crow's Nest Pass branch of the Canadian Pacific Railway at points adjoining these mines.

Our Inspector's reports indicate that the mine which is being operated by the Company at Frank promises to develop into a large undertaking. The coal at that point is first class in character, and, like the coal which is being mined at Fernie, just over the British Columbia boundary, makes good coke, the trade in which will probably reach large dimensions in the near future. Coking ovens are now being erected at Frank, and this industry will, no doubt, provide employment for a large number of men in the near future.

Several other coal measures in that vicinity have been sufficiently prospected and developed to prove their value, and the prospects seem bright for the investment of a large amount of capital in developing the Frank and Blairmore coal fields within the next year or two.

In the Souris coal fields in South-Eastern Assiniboia, the mines at Roche Percee and Coalfields have been consolidated under one management, and the output largely increased. The coal mined there is a good quality of lignite, which is largely used for domestic purposes in Assiniboia and Manitoba. In the earlier days of the mining of this coal it was not looked on with much favour by consumers owing to the difficulty in obtaining stoves which would burn it satisfactorily. That trouble has now been removed by the introduction of stoves specially designed for Souris coal, and the demand for it indicates that the output will increase rapidly and that it will, before long, largely replace other coals for domestic use in the eastern portion of the Territories and South-Western Manitoba.

At the Lethbridge, Canmore and Anthracite coal mines the output shows a material increase during the past year, and at those points a large number of men are now employed.

In the Edmonton district the rapid settlement which has taken place, and the large number of villages and market centres which have sprung up, have materially increased the demand for coal, and nearly all the small mines operating there show increased workings. The mines operated in the Edmonton district are all small undertakings, operated by individual owners, or two or three men working as a partnership, and in the majority of cases the mines are only worked during the winter season. The rapid extension in the demand for coal for local consumption, and the probable early construction of the Canadian Northern Railway through the Saskatchewan Valley, indicates that the time has come when it would pay for a strong company to undertake the development of some of the larger coal deposits in the Edmonton district on an extensive and systematic plan, and in this connection it must be noted that so far no important discoveries of coal deposits have as yet been made in the eastern portion of Northern Alberta or in Saskatchewan, and that with the completion of the Canadian Northern Railway the large area of good land in the Saskatchewan Valley, which is certain to be rapidly settled, must be supplied with coal from the Edmonton deposits.

It is gratifying to be able to report that coal mining operations in the Territories were singularly free during the past year from bad accidents, as will be noted from the following schedule:

SCHEDULE of Accidents at Coal Mines during 1901.

NAME OF MINE.	CHARACTER OF ACCIDENT.			TOTAL OF ACCIDENTS.
	Resulting in Death.	Serious Injury.	Slight Injury.	
Lethbridge	1	3	3	7
Anthracite	..	..	1	1
Canmore	2	..	1	3
The Territories	3	3	5	11

The number of deaths from accident given above show a decrease of eleven over the previous year, and reduce the percentage of deaths to number of tons of coal mined to a much more satisfactory basis than has existed during the past two years.

It may fairly be claimed that this satisfactory condition is largely due to the careful inspection and superintendence of coal mining operations exercised by the Department, and it is hoped that by providing an Inspector who will devote his whole time to mine inspections, we may in the future escape the serious accidents resulting in large loss of life which characterise coal mining in so many countries.

Examinations under the provisions of the Ordinance for Pit Boss and Fire Boss certificates were held during the year and certificates issued to the following gentlemen, who successfully passed the examination:

Archibald Waite,	Estevan,	Pit boss
"	"	Fire boss
Wm. Taylor,	Lethbridge,	Fire boss

One candidate who wrote at examination for Pit and Fire Boss certificate failed to pass.

Certificates as mine managers were issued to five gentlemen during the year in exchange for similar certificates held by them from other Provinces of the Dominion or Great Britain.

The certificates of competence now held under The Coal Mines Regulations Ordinance are given hereunder, and when it is remembered that all these certificates have been issued within the past three years, the fact will in itself serve to illustrate in a graphic manner the growth of the coal mining industry during that period.

Managers' Certificates.

Dan Evans	Calgary.
W. D. L. Hardie	Lethbridge.
James J. Morris	Canmore.
John Little	Coalfields.
Wm. Hamilton	Coalfields.
O. E. S. Whiteside	Anthracite.
Frank B. Smith	Crow's Nest, B.C.
Edwin P. White	Crow's Nest, B.C.
James Hargreaves	Fernie, B.C.
Thos. R. Stockett, Jr.,	Fernie, B.C.
Robinson Pearson	Fernie, B.C.

Pit Boss Certificates.

Gus. Ostheidt	Anthracite.
John Musgrove	Canmore.
Chas. Emmerson	Canmore.
Alfred Davis	Lethbridge.
J. C. Livingstone	Lethbridge.
Robt. Livingstone	Lethbridge.
Hugh Scott	Lethbridge.
T. H. Williams	Canmore.
Arch. Waite	Estevan.

Fire Boss Certificates.

W. E. Watkins	Anthracite
J. W. Watkins	Canmore.
John Wilson	Canmore.
Wm. Cowan	Canmore.
J. J. McKay	Lethbridge.
Robert Scott	Lethbridge.
Robt. Livingstone	Lethbridge.
Hugh Scott	Lethbridge.
Wm. Musgrove	Canmore.
Wm. Taylor	Lethbridge.
Arch. Waite	Estevan.

The annual report of Mr. F. B. Smith, Inspector of Coal Mines, is appended.

CALGARY, ALBERTA, *15th January, 1902.*

J. S. DENNIS, Esq.,
Deputy Commissioner of Public Works,
Regina, Assa.

SIR,—I have the honour to submit herewith my Annual Report (since my appointment in August) on the inspection of coal mines in the North-West Territories for the year ending 31st December, 1901.

The following coal mines have been operated in the North-West Territories during 1901, viz:

The H. W. McNeill Co., Canmore, No. 3 shaft.
The H. W. McNeill Co., Anthracite, No. 1 slope.
Souris Coal Mining Co. Ltd., Coalfields, No. 1 slope.
Roche Percee Mine and Farmers' Mine, No. 1 adit level, No. 2 adit level.
The Canadian American Coal & Coke Co., Frank, Alta., 2 adit levels (1 seam).
Jas. McKernan, Strathcona, 2 adit levels (2 seams).
J. Baldwin, Edmonton, 1 adit level.
T. Bush & Son, Edmonton, 1 adit level.
Wm. Humberstone, Edmonton, 1 adit level.
F. Smith, Namao, 2 adit levels (1 seam).
Martin Bros., Strathcona, 1 adit level.
Burkholder Bros., Strathcona, 1 adit level.
Hermann & Nibbs, Edmonton, 1 adit level.
Daly & Lindsay, Clover Bar, 1 adit level.
James Milner, Edmonton, 1 adit level.
E. Chevigny, Morinville, No. 1 slope.
T. Barnes, Clover Bar, 1 adit level.
J. G. Tipton, Edmonton, 1 adit level.
H. Yardley, Estevan, 1 adit level.
P. Duncan, Estevan, 1 adit level.
Crockford Bros., Medicine Hat, 1 adit level.
J. A. Bangs, Calgary (Sheep Creek Mine), No. 1 slope.
Hunt & Read, Knee Hill, 1 adit level.
William Gillespie, Medicine Hat, 1 adit level.
J. Hoover, Medicine Hat, 1 adit level.

In all, twenty-eight (28) mines, although outside of this there are quite a number of small mines in outlying districts supplying the settlers, but only working at intervals.

The Alberta Railway & Coal Company are now hoisting coal from only one shaft, with screening, loading and general pithead arrangements of the most modern type.

The system of mining the coal there is the "room and pillar" method, main double entries six feet wide being driven parallel to one another with a pillar of thirty feet between them. Every 400 feet another pair of parallel entries are driven, and on each individual entry rooms are driven off at a distance of 34 feet between them, and at right angles to the entries. At a distance of 20 feet from the entries the rooms are opened out to a width of about 20 feet and the room continued in the coal for a distance of 200 feet, until it meets another room driven from another parallel entry. When this point has been reached the miner then breaks through the pillar into the adjoining room and retreats with the pillar. The seam is about 5 feet 6 inches in thickness, but divided by a small seam of fireclay varying from 2 to 6 inches, which is cleaned from the coal and left in the mine. The coal is nearly all mined by coal cutting, or punching machines driven by compressed air. The mine development and improvements in their endless rope haulage arrangements have been carried on so vigorously within the past few years that the capacity of the one mine is easily equal to producing 1,000 tons of coal per day.

The mode of ventilation is by a Capell Fan which is capable of producing a current of 100,000 cubic feet of air per minute, which is more than ample for all present requirements.

The mine at Canmore, operated by The H. W. McNeill Co., is a steady coal producer, and the method adopted for working is the "pillar and stall" system.

This system has been modified within the past year by working the rooms or stalls across the pitch, instead of working them up to the pitch as was formerly done.

The adoption of this modification has greatly improved the amount of coal recoverable when the pillars are being drawn, and I have no doubt considerably reduces the number of accidents both from falls of rock, and also the liability of gas accumulation. The number of seams being worked in this field are four (4), with varying thicknesses of sandstone and shale strata between them. The coal seams also vary very much in thickness, from three to six feet. The pitch, too, is variable from 10 degrees to vertical.

The method of ventilation is by two force fans, each one taking charge of separate districts, with a total capacity of 80,000 cubic feet of air per minute.

The Anthracite Mine is also operated by The H. W. McNeill Co. This mine at the present has a capacity of 100 tons per day, and the method adopted in mining is the "pillar and stall," working up the pitch mostly. Ventilation for the three seams worked is obtained from a force fan with a capacity of 40,000 cubic feet of air per minute.

The Souris Coal Mining Co., Ltd., Coalfields, Assa., operate four (4) mines in the district. Within the past year this company has obtained the control of a large tract of coal land (about 2,000 acres), much of which was formerly operated in small sections by independent owners. The consolidation of all these small interests will no doubt give a greater impetus to the mining industry in this locality, giving steadier work to the miners employed, and under much better control, so as to conform with The Coal Mines Ordinance.

In Nos. 1 and 2 Mines, this coal is procured by coal cutting, or punching machines of the Harrison type, and capable of producing 500 tons of coal per day. The system of working is practically the same as that adopted at Lethbridge. The method of ventilation at present is by furnace, but it is comtemplated in the near future to install a fan.

The Canadian-American Coal & Coke Co., Frank, Alta., operate one mine which has all been developed within the past year. The seam has an average thickness of 12 feet and stands practically vertical. The system of working is a combination of "pillar and stall" and "long wall," driving narrow work ahead to secure good ventilation, which is produced by a four (4) foot Murphy reversible fan. The mine is capable of producing an average of 200 tons per day which, within the next six months, will be increased to an output of 500 tons per day. The coal is bituminous and has been proved equal in steaming qualities to the Crow's Nest coal. The coking quality has also been tested by the erection of six bee hive ovens at the mine, and has been proved to have all the requisite constituents of a firm coherent coke for smelting purposes. The starting of this new industry at Frank is only the first chapter in the history of the future development of coke making in the North-West Territories.

Outside of the foregoing mines, coal mining is carried on in a small scale in the districts of Edmonton, Medicine Hat, Estevan, Knee Hill, Sheep Creek, and along the outcrops of coal on different creeks through the country. These workings are small and it is only by chance that the Inspector gains information regarding them, as often the parties working them own the coal rights, and do not send to the Government any record of their work. In the Edmonton district, where the most extensive operations in these small mines are carried on, I have found a great improvement in the method of working and ventilation, which has certainly been brought about by The Coal Mines Ordinance being enforced within the past few years, greatly to the benefit of the health and immunity from danger of the life of the miner.

There is one point, however, to which I have already specially drawn your attention in my Inspection reports, and that is with regard to Sections 28, 32 and 37 of The Coal Mines Ordinance being strictly complied with. It will no doubt occur in the near future, as at Coalfields, that large sections of the coal lands in these partially settled districts will be operated by one or two companies, producing a fairly large output, with extensive workings, and employing many miners. On approaching these small abandoned mines, of which there is no plan or record; should they accidentally break through into these old workings a rush of water or black damp would greatly endanger a number of valuable lives.

The foregoing refers to all small mines through the Territories, as at the larger mines profitable working and other reasons make it a necessity that plans be made and kept well up to date.

Number of Inspections.

Since my appointment I have visited all the principal mines in the Territories, and the management in each case are doing all in their power to comply with the regulations of The Coal Mines Ordinance. The smaller mines have not all been working, no doubt on account of the mildness of the winter, but as already stated, these mines have seemingly much improved in their methods of working and ventilation.

Examinations.

One examination only has been held since August, and that at Coalfields, Assa., for Fire Boss and Pit Boss Certificates, at which two candidates presented themselves. One candidate, Archibald Waite, miner, was successful in passing both examinations, and Fire Boss and Pit Boss Certificates were issued to him accordingly by the Board. The other candidate, although well up in his work when orally examined, was unable to come up to the standard of the Board in his written examination.

Accidents.

With regard to this subject I am unable to say much, as I have not the necessary data to formulate any statistics comparing the amount of coal mined to the number of accidents fatal or nonfatal, but from enquiries made I think that the past year will show a material decrease in the ratio from the preceding year. The only fatal accident of which I have any knowledge occurred about ten days before my first visit to Canmore. This happened to a driver boy and was purely accidental, he having exceeded the orders of the management, and was crushed between an empty car and the rib side, which eventually proved fatal. Accidents from explosive gas I think have been reduced this year to a minimum, which no doubt shows more careful management and a stricter adherence to the mine laws.

Coal Mining Prospects.

One of the brightest features to be chronicled this year is the activity in prospecting and locating coal claims, which has been unprecedented. In the Blairmore district alone two villages have already sprung into existence (Blairmore and Frank) on account of the wonderful discoveries made in that coal bearing area.

The seams here are at least six in number, which are workable, varying in thickness from 3 feet to 30 feet. The coal is excellent in quality, from a semi anthracite in the more metamorphosed localities to a good bituminous coal in the less disturbed. Most of the coal tested shows also good coking qualities, and I have no doubt in the near future that this industry in the Territories will attain large proportions. The coal which has been long known on the Little Red Deer or Panther River has also been brought into prominence and the quality of this coal, from Dr. Hoffman's report, will ensure it a ready market as soon as railway communication is made.

I have the honour to be, Sir,
Your obedient servant,
FRANK B. SMITH, B.Sc.,
Inspector of Coal Mines.

THE STEAM BOILERS ORDINANCE.

Upon the resignation in June last of Mr. Dan Evans as Inspector of Steam Boilers in Alberta, Mr. Joseph Buxton, of Calgary, was appointed to fill the vacancy. The Inspectors of Steam Boilers now working for the Department are as follows :

Mr. W. M. Carment,....................................	Wolseley.
Mr. Wm. Waller,....................................	Whitewood.
Mr. Jos. Buxton,....................................	Calgary.

The Territories have been divided between the above so as to delegate inspections in Assiniboia and Saskatchewan to the two first named, and inspections in Alberta to Mr. Buxton.

The work completed by Inspectors and in departmental administration of the Ordinance during the past year was as follows :

Number of steam boilers inspected	571
Number of examinations of engineers held	136
Number of first class engineer's certificates issued	7
Number of second class engineer's certificates issued	56
Number of third class engineer's certificates issued	96
Number of provisional engineer's certificates issued	281
Number of permits for operation of boilers issued	24

Fees collected :

For inspection of boilers	$2,705 00
" examination of engineers	489 00
" provisional certificates	843 00
" permits for operation of boilers	72 00
	$4,109 00

The number of boilers inspected during the year shows an increase over inspections during 1900 of 62. The total number of first, second and third class certificates of competency issued to engineers during the year is the same as the previous year. The number of provisional certificates issued was 281, showing an increase of 103 over those issued in 1900.

The marked increase in all branches of work under The Steam Boilers Ordinance was in a great measure due to the large importation of new steam threshing outfits required to handle the bountiful crop, and it is quite evident that an annual increase of steam threshing engines may now be looked for.

Very little friction arose during the past year in connection with the administration of The Steam Boilers Ordinance, and the reports of the Inspectors appended hereto indicate that the work of inspection is proceeding smoothly. In view of the large number of threshing engines employed during the year, and the impossibility of obtaining thoroughly qualified men in each case to operate these engines, it is pleasing to note that nothing in the way of a boiler explosion occurred, although several serious accidents happened to engineers engaged in operating these engines, owing largely to ignorance or carelessness.

In connection with the general subject of inspection of steam boilers, and in view of the fact that the boiler which lately exploded at Portage la Prairie in Manitoba with serious loss of life, was proved to have been operated without inspection and without a proper safety valve, the following extract from an article published in a late issue of The Scientific American regarding steam boiler inspection may prove of interest :

> It is only in the presence of a fatal and destructive explosion that the public fully appreciate the tragic possibilities that are wrapped up in every one of the two or three hundred thousand boilers that nestle among the teeming multitudes of our cities, or speed to and fro on steamboats and locomotives. Steam boiler explosions date from the very first use of steam under pressure, and the records of the early growth of steam engineering are punctuated with many a sad accident due to faults of material or design in the early boilers. With the increase of pressures which came at the time of the introduction of multiple expansion engines there was a call for special care in the testing of the materials and in the construction of steam boilers, and there is no doubt that measured against other forms of constructive mechanical work the boiler of today will hold its own on any point of comparison.
>
> If the security of the user stood solely upon the quality of his boiler, and there was no such thing as rapid depreciation due to neglect or unsuspected decay, there might have been relatively but little work for the steam boiler inspector, and no development of the great steam boiler insurance companies, whose organisation and operations mark them as amongst the most perfect insurance institutions in the world.

The absolute necessity of inspection is so fully realised that, in some States, the inspection of boilers is compulsory, and the State provides inspectors for this work. In such cases a fee is charged by the State for the service. In other States, there is no compulsion about inspections; and in all cases, if the boilers are inspected regularly by a boiler insurance company in good standing in the State in question, additional inspection by the State is not required.

In most of the States, locomotives on railroads are expressly exempt from State inspection. It is presumed that the railroad owning the locomotive will provide a master mechanic or other expert, who will be competent to pass upon the fitness and safety of their locomotives. This presumption does not appear to be altogether realised in practice, for railroad locomotives constitute a class of boilers which explode almost as often as any other class that can be mentioned.

The reports of the Inspectors of Steam Boilers, and the usual schedule of those holding certificates of competency as engineers are appended hereto.

WOLSELEY, ASSA., *1st January, 1902.*

ARTHUR L. SIFTON, Esq., M.L.A.,
Commissioner of Public Works,
Regina, Assa.

SIR,—I have the honour to submit herewith my annual report as Inspector of Steam Boilers for the eastern district for the year 1901.

For the purpose of inspection, the Territories are at present divided into three districts, the eastern district being comprised of the territory between the Manitoba boundary on the east; the line between Ranges 13 and 14 west of the 2nd Meridian, on the west; the United States boundary on the south; and north as far as there are any boilers to inspect.

During the past season I have inspected 253 boilers. Of this number 67 have come into the district this year, most of these being new boilers. The boilers inspected were of the following classes:

Stationary boilers	35
Traction "	76
Portable "	142

and consisted of the following types:

Return tubular	124
Locomotive firebox	122
Upright	3
Upright sectional	4

Many of these boilers, although of the same general type, differ in detail, each manufacturer having a style of his own. Of the 67 new boilers inspected by me 41 were connected with traction engines, which appear to be coming more and more into favour for agricultural purposes. Several of the owners of these have stated their intention of using them for ploughing, but so far as I can learn the use of traction engines for ploughing has not been an unqualified success. Another point in connection with these boilers is that most of them are of considerably higher power than the boilers previously in use. This is necessary on account of the larger threshing machines now in use, and the numerous labour saving attachments connected therewith, but even yet the want of sufficient power is a common complaint, causing a desire on the part of some of the owners, and of the experts sent out by the manufacturers, to be allowed a higher pressure than is consistent with safety. It is worthy of note that the great majority of the new boilers which have come in during the past season are of American manufacture. This may to some extent be due to the Canadian manufacturers being unable to supply the demand which was unprecedented, but there is no doubt the American manufacturers are capturing a large share of the trade in threshing machinery.

Of the stationary boilers inspected 18 are used for operating grain elevators, 7 for flour mills, 6 for creameries, 2 for sash and door factories, 1 for foundry, and 1 for mineral water factory. All the others are used for agricultural purposes. They range in capacity from 4 to 40 horse power. There was a very noticeable improvement in the condition of the boilers inspected this year, the repairs ordered last year having in most cases been made, and although repairs were ordered this year in 87 cases, many of them were of a minor nature. The condition of the boilers was as follows:

In good condition	182
In fair condition	67
In poor condition	4

Of those in poor condition 2 have had the necessary repairs made, rendering them safe to work at a moderate pressure. The other 2, on condition of certain repairs being made, were allowed to work at a very low pressure for this season only.

New lock pop safety valves were ordered in 23 cases. The use of locked or sealed safety valves, although fulfilling the object of preventing an undue pressure of steam being carried, has been found to have some disadvantages in practice. It often happens that safety valves leak from various causes, and it may be necessary to break the seal in order to repair them. It has also been found impossible to set spring safety valves correctly by hydrostatic pressure, and there have been many complaints from owners that the safety valves on their boilers blew off at a lower pressure than was allowed by their inspection certificate. When possible, I now set these valves when steam is up, which obviates this difficulty. There is still in some districts a disposition to kick against the compulsory inspection of boilers, and an unwillingness to pay the inspection fee. This is especially the case in connection with new boilers, the contention being that they have been tested before being sent out, and in the case of some boilers from the United States had also been inspected by a State Inspector, and in several instances I have only been permitted to make the inspection on pointing out to the owners the consequences of refusal.

On account of the large number of new boilers there has been a great scarcity of qualified engineers, and high wages have been paid to good men. Fifteen permits have been granted by me on the application of owners who satisfied me that they were unable to obtain qualified engineers. I have examined 60 candidates for Final Engineer's Certificates, all of whom passed successfully. A number presenting themselves for examination were not eligible and could not be examined. Four foreigners also presented themselves, whom I was unable to examine, they having neglected to procure an interpreter, and although able to speak English, being unable to understand the technical terms used in the examination questions.

There have been no casualties reported to me, but I have heard unofficially of one or two accidents to the engines connected with threshing machine boilers, which were, however, unattended by serious results.

The correspondence of my office has increased considerably during the past year, and, in view of the increase in all branches of the work which is like to continue, it is probable that assistance will be required in the near future in order to keep up with it.

The following is a tabular statement of the season's work :

Total number of boilers inspected		253

Classes.

Stationary boilers	35	
Portable boilers	142	
Traction boilers	76	
	——	253

Types.

Return tubular	124	
Locomotive firebox	122	
Upright	3	
Upright sectional	4	
	——	253

Condition.

Good	182	
Fair	67	
Poor	4	
	——	253

Number of boilers requiring repairs		87
Number of examinations of engineers		60

Number and class of certificates obtained :		
First class	1	
Second class	31	
Third class	28	
	—	60

Number of permits issued under Section 36 of The Steam Boilers Ordinance		15

I have the honour to be, Sir,
Your obedient Servant,
W. M. CARMENT,
Inspector of Steam Boilers.

REGINA, ASSA., *December 27th, 1901.*

A. L. SIFTON, Esq., M.L.A.,
Commissioner of Public Works,
Regina.

SIR,—I have the honour to submit my Annual Report as provided by Section 19 of The Steam Boilers Ordinance of the North-West Territories, for the year 1901.

My work this year has been varied. On March 14th I received instructions from the Department to proceed to Battleford to assist in making some extensive alterations in the deck houses and machinery of the Battleford Steam Ferry, having first to take the boat out of the ice, which proved a very difficult task owing to the hulls of the steamer being full of ice, and the slip which was provided in the fall only about half finished. This work being completed and the boat relaunched to the water, everything proved very satisfactory.

On August 9th I received instructions to proceed to Swift Current to put a pump in the deep well which had been bored to supply the village with water, as the Department could not get a man for that work at that time.

This year, through the bountiful wheat crop, more expense was incurred in connection with the inspection of steam boilers, owing to so many new and second hand steam threshing outfits coming in so late in the season. The same ground had to be travelled over several times and special trips made to these boilers.

I beg to recommend that the whole of these threshing outfits be inspected and their respective safety valves set and sealed before they are put in operation, as several outfits this year were running with 140 lbs. of steam when the limit of safety for their boilers was 115 lbs.

We were placed very much in the same position as last year with regard to engineers, owing to the large increase in steam threshers, and great leniency had to be extended to the men who were operating them, many of whom were poorly qualified. But the threshing had to be done, and I often spent some time at these threshers, giving the men all the information which I thought would assist them in operating their boiler and engine.

It is gratifying to have no accidents to report except through incompetency, several men having lost a limb through being entangled in the machinery while in operation.

I have inspected 183 boilers during the year. The following is the number of each class and the condition in which I found them:

Locomotive type, traction	55
" " portable	27
Return tubular, traction	35
" " portable	20
Tubular, stationary	30
Upright, portable	6
" stationary	5
Locomotive type, return tube, stationary	2
" " " " portable	1
Return tubular, stationary	2

138 of these were in good condition,
45 were in fair condition,
52 had not been inspected before.

Seven of the threshing outfits came from Manitoba to help thresh the crop, but returned before the threshing was finished on account of the cold spell that set in. The threshing is, however, about completed except in a few places some distance back from the main line of railway.

I examined 32 candidates for their final certificates, during the year. The results of these examinations were as follows:

First class	1
Second class	11
Third class	20

I have the honour to be, Sir,
Your obedient servant,
WM. WALLER,
Inspector Steam Boilers.

CALGARY, *January 25th, 1902.*

A. L. SIFTON, Esq., M.L.A.,
Commissioner of Public Works,
Regina, N.W.T.

SIR,—I have the honour to submit my Annual Report as Inspector of Steam Boilers, in accordance with Section 9 of The Steam Boilers Ordinance 1901.

During the past four months my work has been confined almost altogether to the District of Alberta, where I have examined and inspected no less than 129 steam boilers as described hereunder. I have also inspected six steam boilers at Medicine Hat in the District of Assiniboia, as described hereunder. Details of all inspections made by me have been already forwarded to the Department.

Since my appointment in the month of August, 1901, all these inspections have been made principally in Northern Alberta, and when it is remembered that the whole number of steam boilers inspected during the preceding year by my predecessor was 186, it will be seen that the numbers have been increased largely during 1901.

I am pleased to be able to report that the enforcement of The Steam Boilers Ordinance has met with general approval and the machine owners offer no objection to a thorough inspection, believing, as they do, that it is very much to their interest to have their boilers in a safe and efficient condition.

During the above mentioned period I examined thirty-three holders of provisional certificates, and as a result there have been final certificates issued as follows:

First class	1
Second class	2
Third class	30

There have been no casualties or accidents with steam boilers in my district as far as I can ascertain. I found it necessary to condemn one boiler.

1. Description of boilers inspected :

Tubular	28	
Return tubular	38	
Firebox tubular	53	
Upright tubular	10	
Upright sectional	5	
Lancashire	1	
	—	135

2. Condition of boilers inspected :

Good	121	
Very fair	9	
Fair	5	
	—	135

I have the honour to be, Sir,
Your obedient servant,
JOSEPH BUXTON,
Inspector of Steam Boilers.

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.

NAME.	ADDRESS.	DATE OF ISSUE.
	First Class.	
McNabb, Franklin	Fort Qu'Appelle	28 March, 1899
Cross, William	Calgary	“
Liston, Robert F	Battleford	29 March, 1899
Holden, William John	Indian Head	28 March, 1899
Turgeon, Cleophas	Edmonton	“
Mayhew, William	Broadview	“
Cook, George	Regina	“
Kirkland, Thomas	Yorkton	“
Carment, Wm. Maxwell	Kamsack	“
Taylor, George R	Strathcona	“
Evans, Dan	Calgary	“
Collison, George	Coalfields	“
Scott, John	Lethbridge	“
Brissette, Narcisse	Morinville	“
Bell, John	Prince Albert	“
Smith, Percy Lewis	Prince Albert	4 April, 1899
Smith, John McKenzie	Prince Albert	“
Sutherland, James A	Broadview	29 September, 1899
Fraser, David	Strathcona	9 October, 1899
McNaughton, Peter	Edmonton	“
Codd, Edward F	Calgary	5 June, 1900
Niven, Robert	Lethbridge	28 July, 1900
Archibald, Harry P	Lethbridge	15 August, 1900
Jackson, John A	Strathcona	23 October, 1900
Waller, William	Whitewood	6 November, 1900
Roop, Warren E	Moose Jaw	15 November, 1900
Hicks, Robert	Rossetti	24 December, 1900
Fisher, Frank D	Fleming	11 April, 1901
Wilcox, W. C	Moosomin	25 April, 1901
Yates, David	Banff	5 July, 1901
Cadwell, Marcus D	Qu'Appelle Station	18 July, 1901
Turner, Orneldo H	Calgary	30 July, 1901
Buxton, Joseph	Calgary	29 August, 1901
Heist, Wm. E	Edmonton	18 December, 1901

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Second Class.	
Cape, Edmond G. M	Lethbridge	30 June, 1899
Walker, J. B	Lethbridge	"
McKay, Daniel	Lethbridge	"
Reed, W. R	Lethbridge	"
Parcels, Timothy P	Red Deer	4 September, 1899
Bawtinheimer, George H	Red Deer	"
Stapley, Tobias B	Edmonton	"
Ffolliott, L. H	Grenfell	29 September, 1899
Amas, Frank	Qu'Appelle Station	"
Green, George	Moose Jaw	"
Payzant, Ernest M	Edmonton	9 October, 1899
Hubbard, Sydney T	Edmonton	"
Jones, Frederick W	Strathcona	"
Clark, W. Harold	Edmonton	"
Pratt, George	Edmonton	"
Schatz, Wm. H	Strathcona	"
Watson, Ernest P	Strathcona	"
Hennigar, Edward J	Edmonton	"
Thompson, R. D	Wolseley	13 November, 1899
Macey, Charles R	Oxbow	15 November, 1899
Cumming, Thos. C	Whitewood	"
Hamill, Thomas T	Whitewood	"
Collopy, Alexander	Alameda	"
More, Robert	Brendburg	"
Brayne, Joseph	Calgary	1 December, 1899
Shaw, Maltman W. S	Midnapore	"
Evans, Harry W	Anthracite	13 February, 1900
Turner, Orneldo H	Calgary	"
Richards, Henry John	Canmore	"
Toreson, Thomas	Wetaskiwin	7 March, 1900
Biery, Charles	Strathcona	"
Haines, Alfred H	Edmonton	"
Keenan, James S	Moosomin	21 March, 1900
Kerr, William	Lethbridge	23 March, 1900
Moran, Austin	Lethbridge	"
Conn, David	Lethbridge	"
Nimmons, Robert	Lethbridge	"
Stafford, George	Lethbridge	"
Donaldson, Maxwell	Lethbridge	"
Hillis, Henry	Medicine Hat	"
Steven, James H	Calgary	17 April, 1900
Osment, Walter J	Indian Head	25 April, 1900
Grant, Geo	Wolseley	"
Walters, Bertrand	Grenfell	"
Clow, Charles	Ellisboro	"
Shingler, Charles	Grenfell	"
Fitzgerald, Walter G	Belle Prairie	"
Winter, Robert S	Wapella	"
Chalmers, Walter N	Edmonton	28 May, 1900
Pearce, Abram	Edmonton	"
Verey, George W	Prince Albert	"
Shannon, John W	Prince Albert	"
Barley, George T	Prince Albert	"
McBeth, William M	Prince Albert	"
Goodfellow, Willard R	Prince Albert	"
Brydges, Alonzo H	Moosomin	30 May, 1900
Ritchie, William J	Canmore	5 June, 1900
McGee, Thomas	Whitefish Lake	14 June, 1900
Kidd, Frederick	Calgary	"
Workman, Walter R	Oxbow	19 July, 1900

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Second Class.—Continued.	
Bierwirth, Ernest	Carnduff	19 July, 1900
Dickson, William	Oxbow	“
Collopy, Thomas	Alameda	“
Humphrys, William	Cannington Manor	“
McGuirl, John	Moosomin	“
Wood, Charles E. D	Macleod	28 July, 1900
McDougall, John	Regina	“
Burke, Fred	Gainsborough	7 August, 1900
Keith, John	Fitzmaurice	24 August, 1900
White, James	Canmore	5 September, 1900
Lyon, William	Moffatt	“
Holden, Albert	Indian Head	“
Pajot, Jacques	Duck Lake	29 September, 1900
Rankin, Thomas H	Banff	“
Rigby, William	Tregarva	“
Hicklin, John W	Calgary	“
McEwen, Duncan	Regina	“
Donald, J	Moosomin	“
Goodman, J	Moosomin	“
Gibson, Fred. A	Moosomin	“
Hoyer, Richard	Hednesford	“
Hiscox, Thomas S	Regina	“
Abbey, Oliver A	Moose Jaw	“
Nesbitt, John	Moose Jaw	“
Blatchford, K. A	Edmonton	23 October, 1900
Boyes, Henry	Indian Head	30 October, 1900
Eddy, Alexander	Medicine Hat	5 November, 1900
Gamble, Alva H	Moose Jaw	15 November, 1900
Abbott, James L	Moosomin	“
Neufeldt, Peter P	Rosthern	20 November, 1900
Dyke, Abraham	Waldheim	“
Wiebe, William R	Rosthern	“
Blair, Andrew	Lumsden	23 November, 1900
Tomkins, Peter	Whitefish Lake	27 November, 1900
Green, Frederick W	Moose Jaw	13 December, 1900
Stephenson, J. W	Moose Jaw	“
White, William J	Moose Jaw	“
Laidlaw, Robert	Grenfell	24 December, 1900
Shirkie, Andrew S	Grenfell	“
Brown, John E	Spy Hill	“
Dimmick, W. J	Fleming	“
Blain, J. W	Strathcona	31 December, 1900
Ford, Wm. H	Wideawake	24 January, 1901
Anderson, C. J. B	Calgary	7 February, 1901
Gale, Ernest A	Calgary	“
Grieve, David	Calgary	“
Stagg, George	Calgary	“
Steven, Alfred E	Calgary	“
Kowalezyck, Antoine	St. Paul des Metis	16 February, 1901
Cullen, James E	Calgary	21 February, 1901
Shelley, Henry James	Calgary	12 March, 1901
Hunt, Arthur	Wapella	11 April, 1901
Morden, Philip A	Moosomin	“
Fothergill, Charles	Glen Adelaide	“
Vance, Geo. W	Moosomin	“
Croft, J. Thomas	Carievale	15 April, 1901
Wright, Leslie	Gainsborough	“
Marshall, Charles H	Carnduff	17 April, 1901
Bishop, Walter	Oxbow	20 April, 1901
Darragh, Joseph	Oxbow	“

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Second Class.—Continued	
Hames, Alfred A	Oxbow	20 April, 1901
Lapp, Charles T	Alameda	"
Wiggins, James T	Oxbow	"
Foster, James	Glen Ewen	30 April, 1901
Robb, David M	Grenfell	13 May, 1901
Bennett, Joseph H	Arcola	29 May, 1901
Scott, Wallace A	Carlyle	"
Drain, William	Prince Albert	30 May, 1901
McBride, Wm. L	Prince Albert	"
Pendygrasse, John S	Halcro	"
Shea, Francis W	Prince Albert	"
Howell, Edward	Battleford	"
McInnis, Neil B	Regina	21 June, 1901
Websdale, Francis C	Edmonton	"
	Third Class.	
Prince, Joseph A	Battleford	11 July, 1899
Smith, Gavin G	Battleford	"
Ramsey, David	Winnipeg	1 August, 1899
Stadelbauer, Simon	Spruce Grove	18 September, 1899
Russell, Alex. B	Regina	29 September, 1899
Black, Walter M	Wolseley	"
Krieke, C. F	Wolseley	"
Aldous, Robert B	Lorlie	"
Hailey, William	Wolseley	"
Fotheringham, James	Grenfell	"
Dash, Albert	Grenfell	"
Thompson, Charles K	Wolseley	"
Dixon, William	Sintaluta	"
Getty, Samuel	Moose Jaw	"
Brown, Frank	Indian Head	"
Johnstone, Thomas	Qu'Appelle Station	"
Fletcher, Alex	Moose Jaw	"
Thompson, Hugh	Moose Jaw	"
Smith, N. T	Moose Jaw	"
Smith, James W	Moose Jaw	"
Ingram, Isaac	Strathcona	9 October, 1899
Vogel, William	Strathcona	"
Currie, Laughlin	Strathcona	"
Hewer, Jessey James	Strathcona	"
Cameron, John	Edmonton	"
Robinson, John	Edmonton	"
Ottewell, Richard P	Edmonton	"
McKernan, James	Edmonton	"
Witmer, Abraham M	Strathcona	"
Stewart, Thos. H	Strathcona	"
King, John	Regina	13 October, 1899
Sanders, S. B	Grenfell	15 November, 1899
Clement, Lewis J	Carnduff	17 November, 1899
James, William H	Whitewood	"
Cross, William	Crescent Lake	"
Ritchie, Charles	Cut Arm	"
Blatchford, Peter	Edmonton	28 November, 1899
Smith, William F	Athabasca Landing	"
Morkin, John	Dunbow	1 December, 1899
Shaw, John York	Midnapore	"
Stine, Frank	Hyde	13 February, 1900
Stein, Andrew	Tiree	"
Ellerman, Emil	Hyde	"

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Third Class.—Continued.	
Cooper, Watt	Canmore	13 February, 1900
Carscadden, F. W	Strathcona	7 March, 1900
Peirce, George J	Red Deer	8 March, 1900
Saunders, Elias T	Lethbridge	23 March, 1900
Clements, Charles H	Fairmede	25 April, 1900
Krienke, Albert	Ellisboro	"
Faulkner, Gilbert W	Grenfell	"
Fitzgerald, Gerald D	Belle Prairie	"
Halflin, Mark	Wolseley	"
Hunt, Arthur	Wapella	"
Harrold, Donald	Edmonton	28 May, 1900
Gagnon, Alfred	St. Albert	"
Martin, Magloire Z	Morinville	"
Bergeron, Joseph	Fort Saskatchewan	"
Forsyth, George	Prince Albert	"
Ballantyne, Archibald	Prince Albert	"
Nelson, Frank	Wetaskiwin	30 May, 1900
Pateman, George	Welwyn	"
Merrill, Henry R	Carnduff	19 July, 1900
Steele, William L	Oxbow	"
Wilson, J. B	Carnduff	"
Wilson, James E	Calgary	"
Jackson, Charles	Calgary	"
Lang, James	Okotoks	"
Snider, John B	Okotoks	"
Gray, William	Clumber	24 August, 1900
Ritchie, James	Saltcoats	"
Brears, Edward	Clumber	"
Hawkes, A. G	Broadview	5 September, 1900
Fergusson, William	Moffatt	"
Doan, John	Regina	"
Burkman, John A	New Finland	"
Murray, James A	Moosomin	29 September, 1900
Embury, J. R	Wapella	"
Nixon, T. H	Wapella	"
Kerr, William G	Moosomin	"
Godson, Charles	Fairville	"
Park, Richard R	Maple Creek	"
Rutherford, John	Medicine Hat	"
McKen, James	Yorkton	15 October, 1900
Chute, Clarence	Pasqua	"
Erickson, John	Wetaskiwin	23 October, 1900
McDonell, Finlay	The Sturgeon	"
Pearce, James	Edmonton	"
McConnell, William J	Lethbridge	25 October, 1900
Campbell, Thomas	Prince Albert	10 November, 1900
Steffes, Ferdinand	Morinville	15 November, 1900
Steffes, Joseph	Morinville	"
Heffner, Frank	Bruederheim	"
McLellan, John	Fort Saskatchewan	"
McLeod, Millage J	Fort Saskatchewan	"
McKellar, John	Fort Saskatchewan	"
Lamoureux, Alcibiade	Fort Saskatchewan	"
Ross, Thomas G	Poplar Lake	"
Harms, Peter W	Rosthern	20 November, 1900
Neufeldt, D. D	Waldheim	"
Welk, D. A	Rosthern	"
Peters, Jacob	Osler	"
Finn, James E	Fort Qu'Appelle	23 November, 1900
Merchants, John	Lumsden	30 November, 1900

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Third Class.—Continued.	
Grue, Thore S	Bittern Lake	7 December, 1900
Stine, Fred	Tiree	12 December, 1900
Beesley, John W	Marlborough	13 December, 1900
Fowler, James P	Moose Jaw	“
Rattray, Archie B	Edmonton	15 December, 1900
Bonnycastle, Thomas	Katepwe	24 December, 1900
Perkins, William	Kenlis	“
Stephens, Charles	Saltoun	“
Minty, Charles J	Ferndale	“
Nixon, Kendal	Wapella	“
Holden, J. A	Strathcona	31 December, 1900
Clink, Geo. I	Lacombe	“
Hastings, James	Indian Head	24 January, 1901
Schlegel, Frank	Duhamel	26 January, 1901
Mitchell, Timothy W	Red Deer	7 February, 1901
Roberts, William B	Beaver Hills	“
Doman, Frederick	Moosomin	21 February, 1901
Barnes, Zechariah H	Verna	5 March, 1901
James, Charles W	Whitewood	11 April, 1901
Montgomery, James S	Fleming	“
Armstrong, Charles W	Gainsborough	15 April, 1901
Adams, Geo. A	Carnduff	17 April, 1901
Reynolds, Jas. A	Gainsborough	7 May, 1901
Flett, John	Flett's Springs	30 May, 1901
Smith, Alfred H	Prince Albert	“
Melton, John W	Prince Albert	“
Wiebe, Heinrich P	Hague	“
Friesen, Isaac P	Rosthern	“
Mather, E. M	Calgary	6 June, 1901
Campbell, Michael	Canmore	25 June, 1901
Albertson, Andrew O	Strathcona	“
Frayn, Samuel	Coalfields	28 June, 1901
Hargest, Richard	Edgeley	18 July, 1901
Rodgers, Wm. L	Qu'Appelle Station	“
Campbell, John R	Qu'Appelle Station	“
Gray, Joseph	Qu'Appelle Station	“
Rorison, Hugh H	Moose Jaw	8 August, 1901
Martin, Frederick H	Moose Jaw	“
Dalrymple, Archy	Moose Jaw	“
Jones, Robert	Moose Jaw	“
Johnstone, Edward	Chickney	26 August, 1901
Holden, Samuel O	Indian Head	“
Wilson, William J	Indian Head	“
Engelland, Frederick C	Edenwald	27 August, 1901
Fristad, George	Gainsborough	“
Gravy, John	Hyde	29 August, 1901
Ward, William T	Grenfell	“
Macdonald, W. P. C	Poplar Grove	“
Burman, Geo. W	Wapella	“
Christian, John E	Prosperity	“
Millham, Oliver C	Hazelcliffe	“
McFadyen, Neil	Red Jacket	“
Robertson, Alexander	Benbecula	“
Shaw, Ezra	Davin	“
Spooner, Francis W	Red Deer Hill	7 September, 1901
Bushby, Joseph	Whitewood	“
Stewart, Archie	Edmonton	“
Badley, James	Pense	9 September, 1901
Werner, Thos. J	Carlyle	13 September, 1901
Pinney, J. D	Oxbow	24 September, 1901

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Third Class.—Continued.	
Chicard, Victor	Sintaluta	24 September, 1901
Dargavel, A. M	Wolseley	"
Hubbs, Annet	Sintaluta	"
Fleming, Samuel	Wolseley	"
Barber, Samuel R	Wolseley	"
Gardiner, Calvin T	Balgonie	30 September, 1901
Krause, Otto	Innisfail	1 October, 1901
MacKenzie, John D	Dalesboro	2 October, 1901
Joyner, Chas. A	Bentley	"
Prentice, Charles W	Wolseley	3 October, 1901
Burke, Alfred H	Elmore	"
Perry, M. Truman	Alameda	15 October, 1901
Ellis, John	Weldon	"
Hourie, James	Prince Albert	"
Boyce, H. F	Qu'Appelle Station	21 November, 1901
Burman, Chas. D	Qu'Appelle Station	"
Cook, Thos. H	Regina	23 November, 1901
Muth, John	Ebenezer	27 November, 1901
Reed, Jas. Henry	Yorkton	"
Edgington, Guy	Red Deer	18 December, 1901
Bawtinheimer, H. E	Red Deer	"
Cruickshank, Chas	Red Deer	"
Morden, Jacob R	Lacombe	"
Zuehlke, F. C	Urquhart	"
Bannerman, Wm	Red Deer	"
Moore, John R	Innisfail	"
Nichol, David	Innisfail	"
Lewis, Wm. H	Innisfail	"
Billo, Joseph	Edmonton	"
Flack, S	Red Deer	"
Trimble, H. W	Red Deer	"
Stulz, Frank	St. Albert	"
Noyes, Daniel E	St. Albert	"
Simpson, Robt. N	Edmonton	"
Munier, Wilfred	Morinville	"
Lee, George	Edmonton	"
Miller, Philip	Stony Plain	"
Putnam, Albert E	Edmonton	"
McKinlay, Murdoch	Stony Plain	"
Meneely, Wm	Edmonton	"
Bernier, Alexis	Lamoureux	"
Imeson, Geo	Stony Plain	"
Wulff, Nick	Edmonton	"
Powell, Jas. A	Edmonton	"
Sollitt, John H	Strathcona	"
Mikesthus, Michael	Leduc	"
Findlay, Jas. F	Leduc	"
VanMeter, Chas E	Millet	"
Porter, James	Wolseley	2 July, 1901
Fletcher, Thomas	Hill Farm	"
Doughty, James	Calgary	25 July, 1901
McKay, Finlay	Regina	16 August, 1901
Bull, Francis W	Yorkton	"
Arnold, Archie F	Yorkton	"
Kearns, William	Qu'Appelle Station	26 August, 1901
Dash, Frederick J	Hillesden	29 August, 1901
Dalgleish, Thomas	Wapella	"
Kohlruss, Johann	Balgonie	30 August, 1901
McDonald, Allan	Regina	7 September, 1901
Mitchell, Geo. A	Abernethy	9 September, 1901

SCHEDULE of Holders of Certificates of Qualification under The Steam Boilers Ordinance.—*Continued.*

NAME.	ADDRESS.	DATE OF ISSUE.
	Third Class.—Continued.	
Mulberry, David	Spy Hill	13 September, 1901
Gilchrist, Peter	Regina	14 September, 1901
Kelly, John	Edmonton	24 September, 1901
Partridge, Thos. E	Sintaluta	"
Moulding, Charles	Broadview	"
Watson, Hugh C	Oxbow	3 October, 1901
Mitchell, James A	Oxbow	"
Angus, Robert	Angus Ridge	2 October, 1901
Judd, David H	Calgary	5 October, 1901
Bannerman, James A	Red Deer	18 December, 1901
Brownlow, Henry A	Lacombe	23 December, 1901

ACCOUNTANT'S BRANCH.

The marked expansion in departmental work during the year, already referred to, is also indicated by the increase in the work of the Accountant's Branch. The work of the branch, for convenience of reference, is scheduled in usual form as follows:

Total amount voted for public works	$258,810 00
Total amount expended	$236,574 24
Number of accounts examined, certified and passed to Treasury Department for payment	3,337
Amount collected as Departmental revenue and paid to credit of general revenue	$8,300 68
Amount of taxes received for account of large Local Improvement Districts and deposited to districts trust accounts	$74,422 20
Number of accounts for work in large Local Improvement Districts examined and passed for payment	401
Number of cheques issued in payment of accounts in large Local Improvement Districts	951
Amount received in payment of overdue taxes in small Local Improvement Districts and paid through trust account to proper district (No. of cheques issued—663)	$5,961 02
Total amount dealt with through books of Department during year	$325,258 14

The total amount expended during the year on public works shows an increase over expenditure in 1900 on this service of $60,614.24.

The amount collected as Departmental revenue shows a decrease owing to the fact that in the 1900 revenue was included a refund of $10,000 made by the Dominion Government for amount expended in improving the Peace River Road, and $2,000 refund of expenditure on the bridge over Belly River at Standoff.

The sums collected for taxes in large and small local improvement districts during the year show increases over 1900 of $61,041.79 and $2,633.78 respectively, and the total amount dealt with through the books of Accountants's Branch shows an increase over the previous year of $113,987.75.

The figures quoted will serve to indicate the marked expansion of the work of the Accountant's Branch during the year, and I would respectfully direct attention to the fact that this large volume of additional work was completed without any increase in the staff of the branch, and to the further fact that audit of the books of the branch shows that the large sum of money which went through the books and which was made up of many small items, was handled without mistake.

For the purpose of comparison with information of a like character contained in previous reports, statements are appended regarding cost of the administration and supervision, and superintendence and inspection of public works during the past year.

Administration and Supervision.

Total amount dealt with by Department during year, as shown by foregoing statement	$325,258 14
Total expenditure for Departmental staff........	12,571 64
Percentage of cost for administration and supervision..................................	3 86

Superintendence and Inspection.

Amount expended for bridges, roads, dams, ferries and other public works requiring superintendence and inspection....................	$153,755 92
Amount expended for superintendence and inspection..................................	3,317 39
Percentage of cost for superintendence and inspection................................	2 16

It will be noted from these statements that the cost of the Departmental "machine" has been kept within small limits and that the cost has been reduced from 6⅛ per cent. in 1900 to 3.86 per cent. during the past year.

This result is, I think, worthy of special mention in view of the discussion which has lately taken place regarding the centralised system of government in force in the Territories. It may safely be claimed that there is not any municipal system extant in Canada which makes anything like as good a showing for cost of administration ; the fact being that the average cost of municipal administration is at least three times the cost of our centralised government system. It must also be remembered that, in arriving at the percentage of cost of administration and supervision, we have included the total cost of all the Departmental staff except the Commissioner, while a large part of the duties of several members of the staff comprises work in no way connected with expenditures on public works, such as the administration of the small local improvement districts, the villages, coal mines, etc. If it was shown that under the centralised system our public works were not as well and promptly carried out as the work undertaken by municipalities, there might be some reason for the great saving in administration cost shown by the above statement, but such a claim has not been advanced. It is of course realised that in time a considerable portion of the work now undertaken by the Department will have to be delegated to some local organisation, but in the present formative stages of Territorial development there is little doubt that our present system is well suited to existing conditions, and that the cost of administration makes a most favourable comparison with the municipal systems in force in the older Provinces of the Dominion.

The percentage of cost of the superintendence and inspection of public works during the past year shows an increase over the previous year. This increase was due to the fact that a larger staff was employed in superintending and inspecting work in progress, but the cost shown for this service, viz., 2.16 per cent., is less than one half the cost which is stated by the best authorities as being a fair charge for superintendence and inspection of public works requiring technical skill and training in their design and superintendence.

Surveys Branch.

Staff inside	Assistant chief surveyor. One clerk and typewriter. One stenographer and typewriter.
Staff outside	Six district surveyors and engineers.

The work of the Surveys Branch increased to a marked degree during the past year.

In the early part of the year the Territories were divided into six public works districts, and in each of these districts a District Surveyor and Engineer was appointed to look after the matter of road surveys, and also to undertake necessary engineering work in connection with public works in the districts.

The gentlemen appointed as District Surveyors and Engineers for these districts are as follows:

Cyrus Carroll, D.L.S. and C.E.	Prince Albert District.
W. T. Thompson, D.T.S. and C.E.	East Assiniboia District.
A. J. Brabazon, D.L.S. and C.E.	West Assiniboia District.
F. J. Robinson, D.L.S. and C.E.	Southern Alberta District.
R. C. Laurie, D.L.S. and C.E.	Central Alberta District.
A. Driscoll, D.L.S. and C.E.	Northern Alberta District.

The above named gentlemen were employed constantly during the season in completing surveys and engineering work in their respective districts, and the larger number of the more pressing road surveys which were outstanding at the beginning of the year were completed during the past summer and fall.

The reports of the several District Surveyors and Engineers are appended hereto.

The authority to make public works districts and appoint District Surveyors and Engineers was granted by The Public Works Ordinance as amended and consolidated at the last session of the Legislative Assembly. The necessity for such districts and officials had become apparent owing to the trouble experienced during the previous year in obtaining surveyors and engineers to undertake necessary work, and it was thought that by providing a system of permanent employment for outside officials, a staff of thoroughly qualified men could be obtained who would locate permanently at the headquarters for each district, and thus be available to promptly undertake all surveying and engineering work for the Department. The results of the system during the past year have proved eminently satisfactory, and the actual cost of our surveying and engineering work has been reduced when compared with the old system of employing men temporarily.

In addition to the surveys completed during the season by the District Surveyors and Engineers, surveys were made for the Department in Eastern Assiniboia by Mr. Samuel Brodie, D.L.S., and in Alberta by Mr. A. P. Patrick, D.T.S.

Instructions were sent out for 230 surveys, of which 187 were completed before the close of the season. A schedule of the completed surveys is given herewith for purposes of reference.

The following statement will illustrate the work of the branch during the year:

Surveys for which instructions were issued	230
Surveys completed	187
Books of field notes received, examined, indexed and recorded	56
Preliminary agreements for right of way received and recorded	200
Transfers of right of way prepared and forwarded for signature	425
Transfers of right of way received and recorded	300
Certificates of title to right of way obtained and recorded	136
Cases expropriated under the Ordinance of 1901	59
Cases for which titles were obtained prior to December 31st, 1900	550
Cases in process of settlement on December 31st, 1901	600
Cases settled in 1901	750

In addition to the work scheduled above, the branch dealt with a large mass of correspondence resulting from the effort made to clear up all outstanding cases of acquirement of right of way, of which some two thousand were awaiting settlement at the beginning of the year.

It will be noted from the foregoing statement that good progress was made during the year in obtaining title to right of way for roads, and that some 750 cases were closed. Many of these cases included roads surveyed years ago which had not been finally disposed of, and among the large number of questions of right of way still outstanding are many of the old surveys made before the organisation of the Department, which, owing to delay in dealing with them, are now causing serious trouble and inconvenience.

The 187 surveys completed during 1901 will entail a settlement regarding right of way through at least one thousand quarter sections, and as the Department has received a great number of applications for surveys during the coming summer, it is quite evident that the Surveys Branch and outside staff of District Surveyors will have a busy season.

The facts which necessitate this large mass of work in connection with road surveys have been referred to in previous Departmental

Reports, but as bearing upon the remarks given below regarding the settlement of disputes relative to the acquirement of right of way under the provisions of The Public Works Ordinance of 1901, it may be well to again refer briefly to these facts.

In deciding upon the survey system to be adopted in laying out the vacant lands of Manitoba and the Territories for settlement, the information upon which to base the proposed system had of course to be obtained from the Red River Valley, which was the only portion of the newly acquired territory which had been inspected in 1869 and 1870 at the time the system was adopted. It was no doubt at that time assumed that the checker board system which had been adopted for the prairie districts found in the Red River Valley would be equally suitable to the plains which it was understood were to be found further west. It may, however, be pointed out that even at that early date the trouble which was likely to result from the adoption of an arbitrary system of road allowances was foreseen, and the first system of surveys prepared in August, 1869, by Lt. Col. J. S. Dennis, the newly appointed Surveyor General for the territory which had just been acquired by Canada, contemplated the reservation of five per cent. of the area of each quarter section to cover such roads as the future development of the country might prove were necessary for public convenience, instead of laying out arbitrary road allowances around the sections. The decision to adopt the arbitrary road allowance system seems to have been largely due to the representations of Sir Adams Archibald, the Lieutenant Governor of the newly erected Province of Manitoba, who claimed that the proposed five per cent. reservation would work an injustice, for while the full amount of reserved area might be taken from one man's farm for a road which would cut it up badly, his neighbour might escape altogether having a road put through his farm. It was also pointed out by the then Minister of Justice (Sir Alexander Campbell), that it would be unadvisable to issue Crown patents for land in the newly acquired territory containing such an undefined easement as the proposed five per cent. reservation for roads.

As a consequence we have the general Dominion Lands system of arbitrary road allowances extended throughout the Territories, and applied to the northern and foothills portions of the country where the physical conditions are totally unsuited to the system. In the districts referred to, and also in certain other portions of the Territories which are broken by deep valleys, swamps, lakes and ranges of hills, the majority of the road allowances are useless as public highways, and feasible roads must be surveyed and set aside in lieu thereof.

In the earlier days of the settlement of the Territories the Dominion Government realised the existing conditions regarding useless road allowances and commenced the work of surveying and setting aside as public highways the old trails which had been travelled between prominent points. The completion of that work was delegated to the Territorial Government when additional powers were granted in 1898, but in the meantime the extension of the railway lines throughout the Territories, the opening up of new settlements and market centres, and the fencing in of lands which had previously been travelled across in the effort to avoid impossible road allowances, developed an urgent demand for the survey of roads in all parts of the Territories which has resulted in the large volume of work undertaken by our Surveys Branch, and promises to entail a very considerable expenditure for many years to come.

In opening the many hundreds of new roads asked for, the question of obtaining the right of way therefor across each separate quarter section intersected involves a large volume of work, and, like all matters involving the taking by the Crown of land already granted, causes more or less friction and trouble. This trouble is accentuated as the density of settlement and the value of lands increase, and only under the provisions of a simple and clearly expressed law is it possible to deal with the matter in anything like a prompt and satisfactory manner. To meet the existing conditions the special provisions of The Public Works Ordinance regarding the taking of lands for roads and other public works were enacted at the last session of the Legislative Assembly.

The provisions of the law referred to differ materially from the legal enactments in other parts of the Dominion under which land is expropriated by the Crown, and as our law has been the subject of much discussion, it will be interesting to note the results following its practical application during the past year.

It will be seen from the statement already given of the work of the surveys branch for the past year, that since the organisation of the Department, and prior to December 31st, 1900, we had only succeeded in settling 500 outstanding cases of right of way required for roads, and it may be mentioned that a large majority of that number were cases involving a simple reservation by the Department of the Interior of necessary area across Crown lands, and involved no dispute.

During the past year 1,350 cases were settled, 750 of them having been finally disposed of, and 600 practically closed at the end of the year but not finally transferred to the Crown. We have, therefore, during the past year settled nearly three times as many cases as were disposed of during all the previous years since the organisation of the Department, and this result has been entirely due to the provisions regarding the taking of land required for roads or other public works incorporated in The Public Works Ordinance at the last session of the Legislative Assembly. The year's experience of the administration of the provisions of the law referred to, and the results obtained as above outlined, form a fair basis for a reference to those provisions founded upon actual experience.

Judging from the experience and results obtained it may, in the first place, be stated that the trouble and complaints which it was foretold would follow the taking of land under the provisions of The Public Works Ordinance have not materialised.

It will be noted from the statement already given that of the 1,350 cases of right of way for roads dealt with during the past year only 59, or a little over four per cent. of that number, had to be dealt with under the provisions of the Ordinance granting the Commissioner power to fix the compensation to be paid when it was found impossible to make an amicable arrangement with the land owner as to such compensation. Of these 59 cases, 12 involved land owned by corporations, or nonresident land owners, which are unimproved, and there were, therefore, only 47 instances in which the ruling of the Commissioner affected the land of resident owners. Each of these cases, of course, presented particular features requiring consideration, but they were all ruled upon from the standpoint allowing a fair valuation for the land taken, together with any extra fencing required and general damage to the quarter section affected, noting, however, on the other side of account the actual value accruing to the quarter section owing to its being given additional access to market centres *via* the road opened up.

Of the 47 cases ruled upon several were cases which had been outstanding for sometime, and with regard to which the attempt to effect a settlement under the provisions of the old Expropriation Ordinance had failed.

The enforcement of the provisions of The Public Works Ordinance has certainly not been followed during the past year by the widespread dissatisfaction which was foretold by those who thought the law too drastic, and its enforcement has enabled the Department to deal with the vexed question of right of way in a manner which was quite impossible under the provisions of the old Expropriation Ordinance.

The usual schedule of road surveys made during the past year is appended.

QU'APPELLE STATION, *December 31st, 1901.*

J. S. DENNIS, Esq., D.T.S.,
Deputy Commissioner of Public Works,
Regina.

SIR,—I beg to submit the following report on surveys and engineering work performed by me under your instructions during 1901 in Eastern Assiniboia.

From the beginning of the year up to June 6th I was occupied in preparing plans and reports relating to surveys made under your instructions in the preceding year.

On the date above mentioned I sent forward my survey party to Moosomin, where I joined it on the morning of the 11th, and at once commenced work on the survey of road along south side of Canadian Pacific Railway right of way between Moosomin and Fleming.

As detailed reports relating to this and all other surveys made by me have already been sent in I have prepared the accompanying schedule showing the location of each survey, with brief remarks, and for fuller particulars would refer to the reports mentioned.

This schedule includes a few small surveys for which special instructions were not issued, but, being on the ground, and the work being urgently required, I made these surveys so as to avoid delay as well as expense in again returning to the same locality, reporting the circumstances to you in each case.

In addition to the surveys made by myself, the following, for which instructions had been issued to me, were, with your approval, transferred to Mr. Brodie, D.L.S., of Fort Qu'Appelle, viz.: Road up Court's Coulee in Sec. 25, Tp. 21, Rge. 14; also road allowance diversions between Secs. 23/24, 33/34, 23/26, 31/32, all in Tp. 20, Rge. 11, west 2nd Meridian. Also inspection and report relating to road in S.½ Sec. 5, Tp. 21, Rge. 13, w. 2nd M.

SCHEDULE of Surveys performed by W. T. Thompson, D.S. and E., 1901.

Road Allowance Diversions.

Right of way for travelled road on north bank of Pipestone Creek on south-west quarter of Section 34-11-30w1.

To obtain easy grades to bridge over Beaver Creek, Sections 3 and 10-16-30w1.

To avoid several crossings of Antler Creek, Sections 22 and 23-1-31 w1.

To avoid bank of Antler Creek, N.W.¼ Section 18-2-31w1.

To avoid ravines and pond on road allowance, Sections 29, 30 and 31-16-31w1.

Road across Qu'Appelle Valley *via* new steel bridge at Dunsmore's Crossing, to avoid steep banks, Sections 29, 30 and 31-17-31w1, and Section 6-18-31w1.

Across valley of Big Cut Arm at Icelandic Crossing, Sections 20, 21 and 28-18-31w1.

To obtain suitable crossing of ravine, Section 10-12-31w1.

To obtain easy grade on north bank of Pipestone Valley, S.E.¼ Section 32-12-31w1.

To avoid crossing muskeg, Section 8-16-32w1.

To obtain suitable crossing of a ravine, Section 1-18-32w1.

To obtain suitable grade on east bank of Pipestone Creek, N.W.¼ Section 32-13-32w1.

To avoid crossing deep slough, S.E.¼ Section 13-18-32w1.

To avoid steep banks and obtain suitable grades, Sections 28, 33 and 34-13-33w1.

Right of way for graded road leading to McCreary's bridge, N.E.¼ Section 36-13-33w1.

To avoid deep ravines on road allowance, N.W.¼ Section 13-1-1w2.

To include grading done previous to a resurvey of township, Section 15-10-1w2.

To include grading done on north bank of Little Pipestone Creek, S.E.¼ Section 24-11-1w2.

To avoid crossing lake on road allowance, N.½ Section 33-18-1w2.

To avoid crossing lake on road allowance, N.½ Section 34-18-1w2.

To avoid steep hill on road allowance, S.W.¼ Section 28-13-1w2.

To avoid steep hill on road allowance, S.E.¼ Section 28-13-1w2.

To avoid ravines on road allowance, N.W.¼ Section 20-13-1w2.

To avoid muskeg on road allowance, S.½Section 27-13-1w2.

To avoid lake on road allowance, N.W.¼ Section 1 and W.½ Section 12-19*a*-1w2.

To avoid slough on road allowance, S.W.¼ Section 2-19*a*-1w2.

To avoid lake on road allowance, W.½ Section 6-19-1w2.

To avoid sloughs on road allowance, Section 29-19-1w2.

Across valley of Little Cut Arm Creek, Section 1-20-1w2.

To avoid muskeg on road allowance, S.E.¼ Section 26-21-1w2.

Across valley of Big Cut Arm Creek at Ross Crossing, Sections 3 and 10-22-1w2.

To avoid muskeg in valley of Big Cut Arm Creek, N.½ Section 6-23-1w2.

Across valley of Pipestone Creek *via* Parkin Bridge, Sections 9 and 15-14-2w2.

Across valley of Pipestone Creek, Section 19-14-2w2.

Across valley of Montgomery Creek, Sections 19, 29 and 30-14-3w2.

To provide easy approach to new bridge over Moose Mountain Creek, Section 29-7-4w2.

To avoid slough on road allowance, Sections 31 and 32-15-7w2.

Across valley of Pearl Creek to avoid steep banks, Sections 2 and 3-20-7w2.

To obtain suitable crossing of slough, S.E.¼ Section 4-21-12w2.

To avoid sloughs and ravines and obtain easy grades to Qu'Appelle Valley, Sections 9, 15 and 16-20-12w2.

Across ravine *via* Shore's Dam to avoid steep banks, N E.¼ Section 35-21-12w2.

In Qu'Appelle Valley at Harmony Colony, Section 10-18-31w1.

New Roads.

Road between Moosomin and Fleming on south side C.P.R., Township 13-30 and 31w1.

Road leading from Wapella to Brookside, following general course of old Hudson Bay trail, Townships 14/15-33/34w1; and Townships 14/15-1w2.

Between north and south halves of Section 19-3-2w2. Continuation of road leading west from Oxbow.

Leading to watering pond in Section 8-18-8w2.

To give access to reservoir in Section 9-13-30w1.

Resurveys.

To re-establish north limits of Sections 7, 8 and 9-17-1w2.

To re-establish part of north limit of Township 15-30w1.

Slight change in survey of Hyde-Grenfell road, Section 10-19-7w2.

Slight change in survey of road in Qu'Appelle Valley to include bridge at Sioux Crossing, Section 21-21-14w2.

Drains.

To drain depressions on road allowances near Istvan School, Sections 2 and 3-19-1w2.

To drain large hay marsh, Section 29-19-1w2, so that road allowance may be graded and used between Sections 20 and 21.

Reservoirs.

To ascertain flooded area, Section 9-13-30w1.

Proposed Roads Examined and Reported on.

On north bank of Qu'Appelle Valley to connect with valley trail, Section 6-21-12w2.

From S.W.¼ Section 3-21-12w2, leading thence south to lake shore.

Location of road allowance across ravine, Sections 5 and 6-21-12w2.

Proposed resurvey of a road surveyed in 1898, S.W.¼ Section 35-13-2w2.

Cross Sections for Bridges.

Across ravine tributary to Pipestone Creek, Section 10-12-31w1.

Across ravine tributary to Scissors Creek, S.E.¼ Section 30-16-31w1.

Across Qu'Appelle River near Indian Mission, Crooked Lake, Township 19*a*-5w2.

Across Weed Lake in Indian Reserve near Indian Mission, Crooked Lake, Township 19*a*-5w2.

Across Pearl Creek, S.E.¼ Section 3-20-7-w2.

Across Qu'Appelle River south of Mariahilf Colony, S.E.¼ Section 24-19-7w2.

In the beginning of November a succession of hard frosts interfered seriously with mounding operations, and finding that work could not be satisfactorily performed we discontinued survey work for the season, and returned to Qu'Appelle, arriving there on the 7th of that month, leaving the following surveys, for which instructions had been issued, to stand over until the opening of spring next year, viz.:

Road allowance diversions in Sections 30-4-30, Sections 9 and 10-18-31, and between Townships 18 and 19-32, all west of the Principal Meridian; also in Sections 19 and 24-16-6; 10 and 11-19-9; 9 and 10-21-9; 10-17-10; 23-18-10; 12-19-12, all west of the 2nd Meridian.

In all cases where roads have been located across valleys or ravines grade contour lines have been staked out along the hill sides to indicate the elevation for the roadway. The grades have been made as easy as circumstances would allow, and with a few exceptions do not exceed 7 feet per 100; also where necessary at suitable points level stretches of about 60 feet in length have been provided for, where teams can rest on the way up these hills.

As Eastern Assiniboia is traversed nearly through the centre from east to west by the Qu'Appelle River; also in the north-east by the Assiniboine, and the south-east by the Souris River, all lying in deep valleys, and with numerous tributary creeks and ravines, it is in most cases impossible to construct suitable roads across these valleys on the original road allowances, and to obtain suitable grades side hill deviations have to be made.

Also, in many cases, ponds, hay meadows or other obstructions on the original road allowances make diversion surveys necessary, and the demand on the Department for work of this kind must be considerable for some time to come, as each year there is an influx of new settlers, and lands in outlying districts are being taken up.

In addition to the remaining outstanding surveys included in the general schedule of surveys asked for in Eastern Assiniboia, which you transmitted to me on May 6th last, I would recommend that the following be made as soon as convenient, viz.:

1st. To extend Qu'Appelle Valley road from its present termination at west end of Round Lake, eastward to Harmony Colony in Section 10, Township 18, Range 31, west of the Principal Meridian;

2nd. Road across Indian Reserve between Cotham and Broadview;

3rd. Road across Big Cut Arm Valley at Clumber Crossing in Section 10, Township 22, Range 1, west of the 2nd Meridian;

4th. Right of way for graded road across valley of Moose Mountain Creek in Township 3, Range 2, west of the 2nd Meridian, on road between Alameda and Oxbow.

My work last season took me through the greater part of Eastern Assiniboia, and it was very satisfactory to see universally good crops throughout the district.

Your obedient Servant,
WM. T. THOMPSON,
District Surveyor and Engineer.

PRINCE ALBERT, *December 31st, 1901.*

J. S. DENNIS, Esq.,
Deputy Commissioner of Public Works,
Regina, Assa.

SIR,—I have during the year performed 13 small surveys of new roads and road deviations, besides 5 ditches and investigations and reports in regard to such, including a contour line and survey for a reservoir, the latter being an outline survey of about three miles.

The mileage run was over 47 miles, and the time in the field 92 days. The actual mileage chained of course does not mean more than about half the ground traversed for investigation and measurements made to get intersections of such lines as are to be traced up. Hunting up old corners, getting information, exploring, etc., are parts of the work.

In the early part of the season there was much rainy weather. This did not stop me more than a day, but it hindered work, more especially in the long transportations of myself and party from one survey to another.

I so managed as to reach home and be in communication with the Department at intervals of two or three weeks.

A schedule of these surveys is appended to this report.

In the intervals between surveys I examined roads, bridges, ferries, made investigations and reports, consulted with local overseers and inspectors, frequently accompanying them to where they were performing their work.

The high water of early spring did not abate till much later in the season than usual. This was of course bad for the roads. On the Shellbrook road the water floated up crossways or corduroys, disarranged and "bunched" them. It flowed in strong currents for weeks together where no current ever was before, not even water above the moss. This of course washed off much of the sand and gravel covering, but brush in all cases proved its value by remaining intact. The Sturgeon River, or Shell River as it is sometimes called, was a rushing torrent six feet above its ordinary summer level till late in July. The east approach to the steel bridge over said river suffered much damage. During high water it had more than once to be temporarily repaired.

As the safety of the bridge and of the approach were threatened, instructions were issued to make the bridge supports and the bank permanently safe. During the late fall and early winter, at lowest water, this has been effected, brush and gravel being freely used, with a facing of stone from the north-east corner of the bridge along the wing of the abutment up stream. The piles of both abutments have been planked up to stiffen the bents and to keep out floating timbers.

A small bridge or double culvert was put in at the old channel to allow abnormally high water to pass.

Two breaches in the embankment were filled with gravel and sand, with a facing of fine brush. It is thought that the bridge and this portion of road are now in a permanently good condition.

I surveyed a crossing at Drevers' Creek on the Lily Plains road, on River Lot 1 in the Prince Albert Settlement, took levels, cross sections, made plan, profile and specification for a large culvert and the necessary cuttings and embankments. The work was done by day labour under William H. Hutchinson as foreman.

I examined the condition of a bridge on Lily Plains road at Miner's Creek on Section 35, Township 48, Range 1, west of the 3rd Meridian; also a bridge on the Prince Albert and Halcro trail, known as Hutchinson's bridge, on Section 8, Township 47, Range 26, west of the 2nd Meridian. Both of these bridges were repaired by day labour under competent foremen.

I examined Grays' Bridge on trail to Adams' Ferry, Section 28, Township 47, Range 26, west of the 2nd Meridian. This bridge I found to be too much decayed to admit of being repaired. The contract for a new bridge has been let and part of the timber is on the ground. Owing to unforeseen delay in arrival of a pile driver this contract cannot be completed till next spring.

The bridge known as Albert Hudson's bridge, Section 14, Township 47, Range 27, west of the 2nd Meridian, was worn out. A new bridge has been built by day labour under C. J. Cook as foreman.

The bridge near McIntosh School House, Section 11, Township 47, Range 27, west of the 2nd Meridian, is worn out. An application was made for a new bridge, but I believe no action has been taken. A new bridge was required between Sections 34 and 35, Township 46, Range 28, west of the 2nd Meridian, with light embankments at each end. I believe no action was taken.

All the above bridges, except those on the Lily Plains road, are on McFarlane's Creek.

I surveyed a ditch on Section 19, Township 33, Range 4, west of the 3rd Meridian (west of Dundurn station). I also took levels, made profile, plan and specification. The ditch is for the purpose of lowering the waters of Bright Water Lake and the adjacent hay lands. It has been made by day labour under a foreman, at much less cost than was estimated. Part of the cost was borne by the settlers and part by the Government.

I surveyed a ditch to drain a lake on Section 20, Township 47, Range 27, west of the 2nd Meridian, took levels, made profile, specification, and estimate. The contract for the construction of this ditch was let to Wm. Charles MacKay. He worked faithfully at it, but had not finished when cold weather stopped the work. This will be completed in the spring.

I surveyed, took levels, and reported on the feasibility of draining Paul's Lake, Section 18, Township 46, Range 27, west of the 2nd Meridian.

Also at Dowling's, Section 12, Township 46, Range 26, west of the 2nd Meridian, and the connecting sloughs and lakes. Also drain Section 10, Township 47, Range 27, west of the 2nd Meridian.

All these drains except the first named are for the purpose of remov ing water from the road allowances. They will, of course, incidentally improve the adjacent lands.

In regard to the two latter drains, it is gratifying to see that the people are becoming alive to the necessity for drainage.

In the matter of investigation as to the possible drainage of a large slough on Section 25, Township 47, Range 27, west of the 2nd Meridian, I may say that I have explored the country about the slough and levelled up to and along the sloughs to the north, and find it is not possible to drain the slough to the north. A separate detailed report of this case will be submitted.

I may here mention that Mr. McNabb's efforts in clearing out wood and other obstructions from McFarlane's Creek, as recommended in my report, have been productive of much good. He certainly managed to cover a great part of the length of the creek, much more than I had thought possible with the means at his disposal. I think most likely no more will be required to be done to the creek at present.

The grants made to roads about here this year have much improved them, to the great benefit and satisfaction of the settlers. The road grader is especially useful in a prairie country like this. It has been much used during the last year, more especially on roads near the "town."

Several trips had to be taken to the different contracts, repairings and investigations. With distances so great, and indifferent roads, much time was taken up with travel. It would be tedious and serve no good purpose to make a detailed enumeration of these trips. They were taken in the intervals between my surveys, at which times I answered letters and enquirers who came to see me on the several matters I had in charge. Many of these I answered by letter. So fully was my time taken up that when my last survey was done I had not transcribed my field notes, nor made more than one plan. During the winter, when no surveys are on, I will transcribe and copy the field notes and make all the plans. I will hurry up my work and returns, bearing in mind that you may need the plans at any time.

The Dominion Acts seem to require in nearly all cases the large scale of 2 chains to an inch. The local Ordinance requires a duplicate, so that it will take considerable time to get all completed.

In regard to work in the future, I beg to recommend:

That surveys of trails and roads be not made much in advance of actual needs. The certainty of railways in the near future, probably in the next year or two, being constructed through this part of the country, points to a change of the lines of traffic in many places, and to deviations to reach certain points, which cannot be anticipated till the railways are completed.

That district overseers be instructed to pay more attention to the drainage of the roadways. That in cases where it is necessary to make a road across a slough, they ascertain if there is at present or in very high water, an overflow outlet, and, generally, what chance there is for draining the same or of appreciably lowering the water if the complete drainage of the same is too expensive.

That they make a more liberal use of brush in soft places, and never use either sods or manure.

That they always put in a culvert where water is on both sides of the road, even in still ponds, to equalise the water.

That they put in a culvert at every watercourse between sloughs.

That, as far as possible, they consult with the District Engineer as to their work and the drainage generally required in their districts. As the greater part of the local district of Prince Albert is now formed into smaller local improvement districts, I think that if the local improvement overseers were to consult with the District Engineer it would be a mutual advantage. In certain cases I could go with them and take levels to determine the feasibility and sufficiency of drainage.

A schedule of limits and numbers of these smaller districts would be useful in the Engineer's office. Also names and addresses of the overseers where known.

In so sparsely settled a country as this it is often difficult to give the exact section where work is required to be done. This difficulty is accentuated by the settlers being forgetful of their numbers, and wooden stakes being very often too decayed to show numbers.

If it were possible to schedule and order the surveys early in the season, and before any are done, they could be taken up in better order, preventing often the necessity of a long trip over the same ground with team and survey party.

My correspondence with the Department, and with persons who have to do with the business I have in hand, is rapidly increasing. I intend to keep a record of the number of letters received and sent next year.

Your obedient servant,
CYRUS CARROLL, D.L.S.,
District Surveyor and Engineer

SCHEDULE of Surveys performed by Cyrus Carroll, D.S. & E., 1901.

Road, Section 2-48-25w2.
Road, Section 35-47-25w2.
Road, Sections 25 to 32-46-26w2.
Road, Section 32-43-2w3 to Section 18-43-2w3.
Road, Section 21-49-23w2 to Section 24-49-22w2.
Road, east of Lot 82 Prince Albert, and along Hudson's Bay Company's Reserve.
Road, River Lots, Sections 15 and 17-48-25w2.
Road and dam, Section 35-46-25w2, survey and contours.
Road, Sections 9 and 16-37-5w3.
Road, Sections 2 and 3-43-3w3.
Ditch, Section 18-46-27w2.
Ditch, Section 20-47-27w2.
Ditch, Section 10-47-27w2.
Investigation for ditches, Section 18-46-28w2, and Section 12-46-1w3.
Road levels, Drever Creek, Lot 1 Prince Albert Settlement.
Ditch west of Dundurn Station, Section 19-32-4w3.
Road, Section 2-32-5w3 to Section 4-33-4w3
Road, Section 34-46-26w2.
Road, Section 33-46-26w2.
Road, Sections 3 and 4-43*a*-2w3.
Road, Section 3-33-4w3 to Section 2-33-3w3.
Investigations as to drainage of slough, Section 25-47-27w2.

MEDICINE HAT, *January 4th, 1902.*

J. S. DENNIS, Esq.,
Deputy Commissioner of Public Works,
Regina.

SIR,—I have the honour to submit the following general report on my operations in the field during the past season:

I left Regina on the 28th of June for my first survey, which was of a road in the Qu'Appelle Valley from Craven to the west side of the Pieapot Indian Reserve (Survey No. 82), but, owing to delays, I did not reach Craven till the 2nd of July. This survey, which was commenced on the 3rd of July, and ended on the 9th of August, owing to the intense heat, the frequent heavy rains, the unprecedented blood thirstiness of the mosquitoes and the time lost in looking for section and quarter section corners to connect my work with, was one of the most trying and discouraging I ever undertook. The road, however, with very little labour, can be made one of the best in the country.

On the day following the completion of this survey I moved to Loon Creek to survey a road south through the Muscowpeetung Indian Reserve (Survey No. 127). Here I was occasioned delay by some of the settlers wanting a road to Qu'Appelle instead of a road to Balgonie. I objected to making any survey to Qu'Appelle without instructions, and I found, near the east boundary of Section 21, on the north side of the river, a ridge running into the valley, down which I thought a fairly good road could be made, and brought Mr. Finn, the overseer, to look at it. I also brought him to the south side of the valley and showed him a long ravine running from the bottom to the top of it, along the side of which a road with an easy grade could be made at a small cost, out of the valley. He was pleased with this and expressed his entire satisfaction with the route and requested me to survey the road across the valley at this place. I therefore proceeded without further delay to make the survey; commencing on the east boundary of Section 21, Township 21, Range 17, west of the 2nd Meridian, and closed at the quarter section corner on the east boundary of Section 21, Township 20, Range 17, west of the 2nd Meridian, and from the latter point opened the line south to the quarter section corner on the east boundary of Section 9, same Township, to which point on this road allowance grading had been done from Balgonie. Having only crossed three dry slough beds in the way of obstructions on this line, the longest of which is not more than seven chains, I made no diversions, but went on to Balgonie, arriving there on the 28th August, where I made three surveys, the first of a road diversion in the south-west and south-east quarters respectively of Sections 1 and 2, Township 18, Range 17, west of the 2nd Meridian (Survey No. 218); the second of a road from Balgonie to St. Joseph's Colony along the Canadian Pacific Railway, and the third of a road diversion in the north-west and south-west quarters respectively of Sections 1 and 12, Township 17, Range 17, west of the 2nd Meridian. I also went over the road from Balgonie to St. Joseph's Colony with Mr. Junker, the overseer, and prepared a plan of it for the office, and on the 10th of September left Balgonie for Wascana, arriving there on the 11th, where I made two surveys, one of a road diversion from the west boundary of the south-west quarter of Section 28, to the south boundary of the south-east quarter of the same section, Township 18, Range 21, west of the 2nd Meridian (Survey No. 291); the other of a road from the west side to the east side of Section 17, Township 18, Range 21, west of the 2nd Meridian (Survey No. 84). Having finished the survey of these roads on the 17th I moved, the following day, to the line between Townships 18 and 19, Range 21, west of the 2nd Meridian, to survey a road diversion in Section 3, Township 19 (Survey No. 213), but on arrival there I found that to make this road of any public use it would be necessary to continue the survey into Sections 32 and 33, Township 18, and in consequence sent for Mr. Mullin, the overseer, to come and look over the ground. He refused, saying Mr. Cooney knew more about the road than he did, and advised me to consult Mr. Cooney. I then called on Mr. Cooney, who informed me that he knew the road could not be made out of the valley on the road allowance. So I continued the survey into Sections 32 and 33, but owing to the continued snow and rain storms, and to the absence of mounds on the correction line, I did not get through with this survey till the 27th of September.

On the 28th September I proceeded to Lumsden, where I made six surveys, the first of a road from the east boundary of the north-east quarter of Section 28, in a north-westerly direction, through the north-east corner of this quarter section, and the south half of Section 33, Township 19, Range 21, west of the 2nd Meridian, to Lumsden (Survey No. 156); the second of a road from the west side to the east side of Legal Subdivision No. 13, and adjoining the north boundary thereof, Section 28, Township 19, Range 21, west of the 2nd Meridian (Survey No. 303); the third of a road diversion in the north-west quarter of Section 28, from the south-west corner thereof to the road across the north end of Legal Subdivision No. 13, Township 19, Range 21, west of the 2nd Meridian (Survey No. 304); the fourth of a road diversion in the south-east quarter of Section 30 from the east boundary to the south boundary thereof, Township 19, Range 20, west of the 2nd Meridian (Survey No. 80); the fifth of a road diversion in the north-west corner of the south-west quarter of Section 4, from the west boundary to the north boundary thereof, Township 19, Range 21, west of the 2nd Meridian (Survey No. 83); and the sixth of a road from the north-east corner of the north-west quarter of Section 12, north through the east half of Section 13, the south-east quarter of Section 24, and the north-east quarter of Section 24, to within fourteen chains of the north-west corner of this quarter, thence in a north-westerly direction through the north-west quarter of Section 24, and the south-west quarter of Section 25, to the surveyed road in the Qu'Appelle Valley, Township 19, Range 22, west of the 2nd Meridian (Survey No. 81).

Having finished these surveys, the 15th October I moved to Township 19, Range 23, west of the 2nd Meridian, to survey a road from the east boundary to the south boundary of the south-east quarter of Section 13 (Survey No. 161), but found on examination that the difficulty of getting up the hill on the road allowance was no greater than of getting up at any other place, and asked Mr. McArthur, the overseer, why he applied for this road; he informed me that he made application for a road to Disley, and the settlers requested him to apply for this road at the same time, but he knew of no reason why there should be any diversion from the road allowance. I therefore made no survey but went on to Moose Jaw Creek, arriving there on the 17th October, where I made three surveys, the first of a road diversion in the north-west quarter of Section 7, from a point nine chains west of the north-east corner of this quarter to a point twenty-eight chains west of the same corner, Township 17, Range 24, west of the 2nd Meridian (Survey No. 170); the second of a road diversion from the south boundary of the south-west quarter of Section 18, Township 17, Range 24, west of the 2nd Meridian, through the south-west corner of this quarter, and the south half of Section 13, to the south-west corner thereof, Township 17, Range 25, west of the 2nd Meridian (Survey No. 169); and the third of a road diversion in the north-east quarter of Section 11, from the north-east corner thereof, to a point ten chains west of the north west corner of the said quarter, Township 17, Range 25, west of the 2nd Meridian.

Having completed the surveys at this place, on the 21st I moved to Pasqua, and the following day commenced the survey of a road on the north side of and adjoining the blind line from the north-east corner of Section 27, Township 16, Range 25, west of the 2nd Meridian, to the north-east corner of Section 27, Township 16, Range 26, west of the 2nd Meridian (Survey No. 77), which I completed on the 23rd of October, and on the 24th moved to Mr. Little's, where I surveyed a road from the east boundary of the south-east quarter of Section 1, through the south half of this section, and the south-east quarter of Section 2, Township 17, Range 26, west of the 2nd Meridian (Survey No. 78). Having completed the survey of this road on the 25th, I moved to Bain's Crossing of Moose Jaw creek on the 26th, where I surveyed a road in the south-west quarter of Section 1, along the north and east boundaries of this quarter, Township 16, Range 26, west of the 2nd Meridian, and thence to the bridge across Moose Jaw Creek in Section 36, Township 15, Range 26, west of the 2nd Meridian (Survey No. 75). Following the survey of this road, which I completed on the 28th October, I examined the road allowance between Ranges 26 and 27, west of the 2nd Meridian, from the north-east corner of Section 25, Township 16, to the south-east corner of Section 1, Township 15, across which the trail from Moose Jaw to Wood Mountain winds several times between these points, and having found no obstruction on the road allowance, the only survey I made was of a road from the west side to the east side of Section 30, and adjoining the north boundary thereof, Township 16, Range 26, west of the 2nd Meridian (Survey No. 76). This road will accommodate settlers coming to Moose Jaw from the west, as well as those coming from the south. I completed the above survey on the 1st November and proceeded to Township 17, Range 28, west of the 2nd Meridian (Survey No. 208), and on the 2nd examined the road allowance between Sections 25 and 26, and the road proposed by Mr. Hawkins, and concluded that his condition would not be bettered any by making the change suggested by him, as the deepest ravine would still have to be crossed. I consequently made no survey, but returned to Moose Jaw, where I paid off the men on the 6th November, and left for Medicine Hat, which I reached on the 21st.

Before closing my report I wish to say that on my return from Survey No. 208, to Moose Jaw, I continued Survey No. 77 to the north-east corner of Section 28, and thence through Section 33, to the bridge on Manitoba street, Township 16, Range 26, west of the 2nd Meridian. As I received no instructions for this survey, having made it merely on the strength of a letter shown me by Mr. H. Smith, overseer, from you to him, dated October 23rd, I dug no pits, marking the road by posts only, which, in the event of the survey not being required, can easily be removed.

Regarding future work, I would suggest that the following roads be surveyed:

1st. A road through Section 17, in a southerly direction from the road running east and west across this Section (Survey No. 84), to the east boundary of Section 8, and in a northerly direction to the east boundary of Section 20.

2nd. A road from the west end of the road diversion in Section 28 (Survey No. 291), in a northerly direction through Section 29 to a point on the north-east boundary of Section 29, north of the ravines running into the valley of Wascana Creek, all in Township 18, Range 21, west of the 2nd Meridian; the road allowance at these places being impassable.

3rd. A road from the north end of the road diversion in the north-east corner of the south-west quarter of Section 4 (Survey No. 83) to the east boundary of Section 8, Township 19, Range 21, west of the 2nd Meridian, the road being impassable at this place. The road at present travelled runs through the north-west quarter of Section 4, but I believe a better roadway could be found in the north-east quarter of Section 5.

4th. A road from the north end of the road diversion in the north-west quarter of Section 28, Township 19, Range 21, west of the 2nd Meridian (Survey No. 208) across the property of Mr. James, to Lumsden.

I am, Sir,
Your obedient servant,
A. J. BRABAZON,
District Surveyor and Engineer.

MACLEOD, *December 27th, 1901.*

J. S. DENNIS, Esq.,
Deputy Commissioner of Public Works,
Regina.

SIR,—In connection with the Engineering and Surveying work in Southern Alberta, during this season, I beg to submit the following general report:

Since taking charge of this district I have received instructions to make thirty-five trail surveys: Twenty-two of these have been completed, and reports on them will be filed during the winter; one was abandoned on advice from you after my preliminary report; one has been referred back; two have been cancelled by your advice, they being turned over to another surveyor; two were completed on my arrival at the site and four have been laid over until next season.

While locating the above trails and diversions I adhered as closely as possible to the original road allowances. Where these were impracticable the nearest blind lines were examined, and if none were feasible, I located the trail where the best permanent trail could be made at the least cost, and in my opinion with the least damage to the affected quarter section. Little opposition was offered by the settlers when it was decided to pass through their lands, and with but one or two exceptions, no trouble will arise when a transfer of title is asked for by the Department.

Fifty-five Preliminary Agreements have been obtained from the homesteaders and owners from whom land will be required, and in these the rate per acre asked by the settler varies from three to five dollars. Exceptional cases exceed this rate on account of damage claimed for fence moving, etc.

I have selected and surveyed sites for two new steel bridges, one being on Section 28, Township 7, Range 1, west of the 5th Meridian, across the Crow's Nest Branch of the Old Man River; and the other on Section 1, Township 2, Range 25, west of the 4th Meridian, being across the St. Mary's River near a point known as the "Indian Ford."

I have also reported to you regarding necessary repairs to existing bridges, and have recommended certain improvements necessary for the convenience of the settlers.

Referring to future work, I may make suggestions for a few minor changes:

In many places I think that the pits which are placed to mark the trails are too near the posts, and would suggest that a distance of six feet be adopted instead of three as at present. I have noticed where close pits were placed at section corners, they have fallen, and centre tuft finally broken down, so that they are not easily distinguished from a buffalo wallow; whereas pits farther apart, though nearly filled by wind or cattle, can easily be distinguished from any other marks that occur on the prairie.

The forms now used for Preliminary Agreements I think could be improved by providing a place to insert claimed damages for fence moving, etc. As it is, the settler reckons his damages and is obliged to express it in rate per acre, and on that account I have been unable to get fair land rating in some cases. Regarding the fence question, which is an important one, it would be more satisfactory and fairer to contents and malcontents alike if the Government would adopt a certain price per foot for fencing, provided the ranche is fenced before the trail is run.

I have the honour to be, Sir,
Your obedient servant,
F. J. ROBINSON,
District Surveyor and Engineer.

RED DEER, ALTA., *January 9th, 1902.*

J. S. DENNIS, Esq., D.T.S.,
Deputy Commissioner of Public Works,
Regina.

SIR,—I have the honour to submit the following report respecting the work performed by me during the past year as District Surveyor and Engineer for Central Alberta District.

Previous to taking up the duties of this office, on my return from leave of absence last April, I worked at headquarters for a couple of weeks completing plans of previous surveys, and also made a survey of a road to connect with the town of Battleford, an expropriation survey near Saskatoon, and a road diversion survey near Maple Creek.

I arrived at Red Deer on the 11th of May and commenced field work as soon as I had arranged for an office and had outfitted my party.

During the year I received instructions to make fifty-eight surveys of roads and road allowance diversions; five surveys and cross sections for bridges; ten surveys in connection with drainage; and eight examinations and reports on road allowances and proposed roads. Of these I surveyed or reported on sixty pieces of work.

Field work was greatly delayed in the early part of the summer by unfavourable weather, it having rained more or less on twenty-seven days in June, besides an unusual quantity during some other months. Owing to the large immigration into this district during the past year there has been a great deal of fencing built, which has tended to confine travel to the surveyed road allowances. In many cases these were rendered impassable owing to the sloughs being full of water. In several instances I have found as much as three feet of water standing on roads that had been ploughed up and travelled on in previous years.

I was not able to undertake the survey of any of the old trails with the exception of the portion of the Buffalo Lake trail between Battle and Red Deer lakes, the greater part of the surveys completed being road allowance diversions.

The principal bridge site surveys were to locate crossings of the Red Deer River near Innisfail, and of the Blindman River.

In addition to the necessary levels for some small drains I made the survey for a ditch three miles and three-quarters in length to drain the slough which blocks the Lacombe to Buffalo Lake road. This slough is a quarter of a mile wide, opposite the town of Lacombe.

On account of the exceeding wetness of the past few years and the nature of the soil, the overseers have been seriously handicapped in making road improvements, and have not been able to get full value for the amount of work performed. At the same time I think that if the overseers of each group of townships could be brought together for a day at a central point, and see a piece of road constructed and ditched by an expert, it would tend to cause the road improvements to be made in a more permanent and economical manner. An objection might be made that in a day there could not be very much work completed, but with a grading machine sufficient earth could be moved to show the manner of working. They could also be shown the advantage of draining the roadway by proper ditches, a point to which there is not sufficient attention being paid.

Since opening this office in May last there have been 230 letters and telegrams received, and 259 letters have been written.

I have the honour to be, Sir,
Your obedient servant,
R. C. LAURIE,
District Surveyor and Engineer.

EDMONTON, ALTA., *January 28th, 1902.*

THE DEPUTY COMMISSIONER,
Department of Public Works,
Regina.

SIR,—I have the honour to report as follows on the work carried on from this office during the past year:

The office of District Surveyor and Engineer for Northern Alberta, with headquarters at Edmonton, was formed in the beginning of 1901, since which time all works coming under that head have been looked after directly from here, and the new system has given general satisfaction. The resources of the office were taxed at times on account of the volume of work, but it is hoped the coming year to quite keep up with it.

The three different classes of work upon which I have been engaged are:

New and old road surveys.
Road diversion surveys.
Drainage surveys.

Of the first mentioned there were 11, some of which, as in the case of the Sturgeon River trail, passing through some 12 miles of cultivated land, required considerable care.

The second class of work, while probably urgently required, is more of a temporary nature, and is undertaken with a view of overcoming obstacles such as ravines, ponds, etc., which in the course of time will be bridged and drained, and the regular road allowances adhered to. There were 28 of this class of surveys.

The last, and I might say the most important class, is the drainage surveys, of which there are three principal ones, viz.: Drains Nos. 1, 2 and 52, the first one being some ten miles in length, the others respectively four and a half and four miles and having a maximum depth of 12 feet. The work done by these drains has been an object lesson to the district in the way of draining the roads, and meetings are now being held in different localities where both the ponds and roads are under water, to devise means and co-operate with the Department of Public Works in constructing additional drains for the public and private good. In addition to these larger drains, or canals as they might be called, there were some 15 minor drainage schemes surveyed, some of which were several miles in length, but the great diffculty of getting labour and teams, coupled with an extremely wet season, prevented much work being done on them. It is hoped, however, that the conditions may be more favourable for work this coming season, so that work on them may be pushed.

Of other works, such as bridge inspections, arranging for transfers, furnishing data for contractors, etc., the office has had a busy year, but it is hoped that, with the experience of the past year, together with improved methods, the work will be much facilitated during the coming season.

I have the honour to be, Sir,
Your obedient servant,
A. DRISCOLL,
District Surveyor and Engineer.

SURVEYS MADE DURING THE YEAR 1901.

NEW ROADS.

District of East Assiniboia.

From Wapella to Brookside, Tp. 15-33w1 to Tp. 13-1w2.
At crossing of Big Cut Arm Creek, Sections 21, 28, Tp. 18-31w1.

Between Tps. 15, 16-30w1.

From Moosomin to Fleming, along south side of C.P.R. track, Tps. 13-30 and 31w1.

To reservoir fenced in on Section 9, Tp. 13-30w1.

Up the hill from Dunsmore's Crossing over Qu'Appelle River.

To bridge over the Qu'Appelle River to be changed west half Section 21, Tp. 21-14w2.

Up Court's Coulee, Section 25, Tp. 21-14w2.

Approaching St. Istvan School, Section 3, Tp. 19-1w2.

In Section 6, Tp. 21-12w2 and Section 31, Tp. 20-12w2 to connect with the Fort Qu'Appelle-Fort Ellice road.

Across Little Cut Arm Creek on west side of Section 6, Tp. 20-1w2, leading to Saltcoats.

Leading south to the lake shore commencing at the south-west corner of Section 3, Tp. 21-12w2

Between Tps. 18, 19-32w1.

Road staked out by Thos. McNutt last year at Ross' Crossing of Big Cut Arm Creek between Sections 3, 10 Tp. 22-1w2.

Through the Assiniboine Indian Reserve south of Sintaluta to give the settlers south of the reserve a direct road to the railway line.

From south-west corner of Section 3, Tp. 21-2w2 south to Qu'Appelle Valley, also diversion around slough in Section 4, Tp. 21-12w2.

Road out of the Qu'Appelle Valley immediately east of Crooked Lake from the Indian Mission.

Road north and south from bridge over Montgomery Creek in Section 30, Tp. 14-3w2.

District of West Assiniboia.

Road across south halves of Sections 1 and 2, Tp. 17-26w2 to give W. Little, who lives on the south-west quarter of Section 6, Tp. 17-25w2 access to Moose Jaw.

Along the Qu'Appelle Valley from Craven east to the west boundary of Piapot's Indian Reserve.

Road through the centre of Sections 13, 24 and 25, Tp. 19-22w2 to meet road running east and west from Lumsden.

From Lumsden south-easterly through the south-east and south-west quarters of Section 33 and the north-east quarter of Section 28, Tp. 19-21w2 to the road allowance between Sections 27 and 28.

Road leading to bridge over the Wascana Creek in Section 17, Tp. 18-21w2.

Road from north-east corner of Section 27, Tp. 16-25w2 along the blind line west of the north-east corner of Section 27, Tp. 16-26w2 to give access to Moose Jaw to people in Pasqua.

Road crossing Wascana Creek between Tps. 18 and 19-21w2 between Sections 32 and 4 and 33 and 3.

Road from Bain's Crossing on Moose Jaw Creek in Section 36, Tp. 15-26w2 to the south-east corner of the south-west quarter of Section 1, Tp. 16-26w2

Road through Sections 1 and 2, Tp. 18-17w2 to give access to Balgonie from the east.

From Loon Creek to near Hednesford to meet the graded road north from Balgonie through Tps. 19, 20 and 21-17w2.

Ten miles of old travelled trail from Moose Jaw to Wood Mountain from Moose Jaw south.

Along and adjoining the right of way of the C.P.R. line from the east boundary of Section 3, Tp. 18-17w2 to the east boundary of Section 6, Tp. 18-16w2.

Along the north boundary of Legal Subdivision No. 13 in the north-west quarter of Section 28, Tp. 19-21w2.

District of Saskatchewan.

Road in River Lots 15 and 16, Tp. 46-25w2.

Road to afford access to bridge over the Narrows at Duck Lake through Sections 19, 29, 30 and 32, Tp. 43-2w3.

Between River Lot 82, Prince Albert Settlement and the Hudson's Bay Company's Reserve Tp. 48-26w2, leading into Village of Prince Albert.

Along the blind line from the south-west corner of Section 21, Tp. 49-23w2, easterly through Tp. 49-22w2 to the Forks of River in Section 24, Tp. 49-22w2.

Road leading to Dundurn Station in Section 9, Tp. 33-4w3 from Section 2, Tp. 32-5w3, and extended east four miles along the north side of the first tier of Sections in Tp. 33-4w3.

Road around slough between Sections 3 and 4, Tp. 43*a*-2w3.

District of North Alberta.

Road around the Hudson's Bay Company's Reserve, St. Albert Settlement, Tp. 54-26w4.

Road through River Lot 59, Sturgeon River Settlement.

Through Sections 17 and 20 and 29, Tp. 52-24w4.

Survey of River Lots, Fort Saskatchewan Settlement.

Along the south boundary of Section 7, Tp. 53-25w4.

Along the blind line between Sections 13 and 24, Tp. 47-23w4 and west.

Along south boundaries of Sections 15, 16 and 17, Tp. 53-22w4, making the necessary diversions to avoid sloughs.

Road through Section 23, Tp. 49-24w4.

Road between River Lots E. & F., St. Albert Settlement.

District of Centre Alberta.

Road east and west through west half Section 17, Tp. 38-27w4.

From Wetaskiwin West Tp. 46-24w4.

East and west from Village of Red Deer 9 miles along the blind line between Sections 16 and 21, Tp. 38-27w4.

East and west from Ponoka Station on the Calgary & Edmonton Line 12 miles east and 12 miles west.

South of the Battle River across River Lots 47 to 26 inclusive Tp. 46-21w4.

Part of trail from Wetaskiwin to Buffalo Lake from the north-east corner of Section 10, Tp. 43-22w4 to the south-west corner of Section 6, Tp. 44-22w4, and further if suitable.

Leading to and from bridge over Battle River at Shantz' Crossing Section 25, Tp. 45-23w4.

Along blind line between Sections 15 and 22 and 14 and 23, Tp. 39-26w4.

From Wetaskiwin North to the Calgary and Edmonton trail on the west side of the Calgary & Edmonton Railway crossing Section 23, Tp. 46-24w4.

In Sections 27, 26, 25, 34, 35 and 36, Tp. 42-26w4.

In Sections 33 and 28, Tp. 41-27w4.

Along east side of Bittern Lake in the north boundary of Section 29, Tp. 46-21w4.

Around the south end of Gull Lake, Tp. 40-29w4.

Road across Section 16, Tp. 43-16-3.

District of South Alberta.

From Cochrane up Horse Creek, Tp. 26-4w5.

From Bradbourne P.O. north-east quarter of Section 2, Tp. 29-4w5 to south to connect with road surveyed from Cochrane.

From Morley to Canmore on north side of the Bow River.

Road through centre of Section 18, Tp. 20-28w4 from the west boundary to the river; thence north-easterly along the river to the new site for bridge, the survey being changed to suit the changed location of the bridge, and to connect new bridge across Highwood River in Section 17.

From the south-west corner of Section 35, Tp. 27-1w5 east along the blind line to the Calgary & Edmonton trail.

Extension of the boulevard from west boundary of Section 17 to the west boundary of Section 25, Tp. 24-1w5 to be 3 chains in width and following the river bank.

Along the north boundary of the south-west quarter of Section 26, Tp. 23-1w5.

From the North Morleyville road in Section 15, Tp. 25-2w5 north and east to junction with survey of road up the North Fork of Nose Creek.

From the south end of the trail on the North Fork of High River south-east around Big Hill to the road allowance leading to High River Station.

Continuation of road from Pincher Creek through Crow's Nest Pass to summit.

Road through Sections 3, 4, 5, 8 and 17, Tp. 8-2w5.

Road past H. B. Lake connecting with road from Section 36, Tp. 7-2w5 to Section 21, Tp. 7-3w5.

From Section 1, Tp. 8-3w5 to Section 13, Tp. 8-3w5.

From Section 36, Tp. 7-2w5 and on west to Section 20, Tp. 7-3w5.

East and west of Mountain View along blind line Tp. 2, Rgs. 27 and 28w4.

Crossing the Middle Fork of Old Man River between Sections 28 and 29 and 32 and 33, Tp. 7-1w5.

From Mountain View to timber through Tps. 1 and 2-27w4 and Tp. 1-28w4.

From Mountain View to timber through Tps. 1 and 2-28w4.

Along the south boundary of Sections 3, 4 and 5, Tp. 21-3w5;

thence south-westerly along the south bank of North Branch of Sheep Creek to Settlement in Tp. 20-4w5.

Road following the road allowance on the east side of Sections 3, 10, 15, 22, 27 and 34, Tp. 5-29w4 to connect with the Fishburn road, making all necessary diversions.

Waggon road from Beaver Dam to Crow's Nest Lake, Tp. 8-5w5.

Up North Fork Old Man River from Olin Coulee to Walrond Ranch in Tp. 9-1w5.

Road leading to bridge over Chipman Creek at Levasseur's Crossing between Sections 19 and 30, Tp. 6-29w4.

From north-east corner of the south-west quarter of Section 4, Tp. 7-2w5 to the Crow's Nest trail.

Road through the north-west quarter of Section 8, Tp. 4-28w4.

ROAD DIVERSIONS.

District of East Assiniboia.

Between Sections 29 and 30, Tp. 16-33w1.

In the north-east quarter of Section 28, Tp. 13-33w1.

In Section 32, Tp. 13-32w1.

Between Sections 3 and 10, and 4 and 9 Tp. 16-30w1.

Inspection of a road in the south half of Section 5, Tp. 21-13w2 as to the feasibility of a subway being made under road, as objection was made to shutting off the remainder of the half section from the lake front.

In the south half of Section 6, Tp. 23-1w2 along the north bank of Cut Arm Creek from north of Metcalf's Crossing to road allowance of Section 6.

Between Section 3, Tp. 20-7w2 and Section 34, Tp. 19-7w2.

On west side of Section 6, Tp. 19-1w2, on the west side of the north-west quarter of Section 1, Tp. 19*a*-1w2, and on the west side of fractional south-west quarter of Section 12, Tp. 19*a*-1w2 to avoid lakes.

At crossing of Pipestone Creek in the south-west quarter of Section 34, Tp. 11-30w1.

Leading to bridge over the Pipestone Creek in the north-east quarter of Section 36, Tp. 13-33w1.

In Section 10, Tp. 12-31w1 to avoid hill on road allowance.

Between Sections 32 and 33, Tp. 12-31w1 to avoid hills on road allowance.

Around slough on the west boundary of the south-east quarter of Section 13, Tp. 18-32w1.

To avoid creek in the south-west quarter of Section 23, Tp. 1-31w1.

On the road leading south from Grenfell between Sections 31 and 32, Tp. 15-7w2 to avoid sloughs on road allowance.

Change of location of road diversion in Section 35, Tp. 13-2w2.

In the north-west quarter of Section 18, Tp. 2-31w1.

In Section 24, Tp. 11-1w2.

In Section 2, Tp. 19*a*-2w2.

On north of Sections 33 and 34, Tp. 18-1w2 to avoid lakes.

To avoid deep ravines on road allowance along the west boundaries of Sections 13 and 24, Tp. 1-1w2.

North of Parkin Bridge on the Parkin-St. John Road in Tp. 14-2w2.

Between Sections 8 and 9, Tp. 16-32w1.

Through the north-east quarter of Section 29, Tp. 7-4w2.

Between Sections 31 and 32, Tp. 20-11w2.

Between Sections 33 and 34, Tp. 20-11w2.

Between Sections 23 and 26, Tp. 20-11w2.

Between Sections 23 and 24, Tp. 20-11w2.

Between Sections 22 and 23, Tp. 20-11w2.

In the north-west quarter of Section 26, Tp. 21-1w2.

Across a ravine in Sections 8 and 17, Tp. 21-12w2.

Between Sections 14 and 15, Tp. 10-1w2.

District of West Assiniboia.

On the south boundary of the south-east quarter of Section 30, Tp. 19-20w2.

Between Sections 7 and 18, Tp. 17-24w2 on trail from Moose Jaw to Eastview and Stony Beach.

Between Sections 12 and 13, Tp. 17-25w2 on road from Moose Jaw to Eastview and Stony Beach.

Between Sections 1 and 2, 11 and 12, Tp. 17-7w2.

In the south-west quarter of Section 28, Tp. 18-21w2.

Between Sections 28 and 29, Tp. 19-21w2.

Between Sections 4 and 5, Tp. 19-21w2 on the south side of Wascana Creek.

District of Saskatchewan.

Road diversion south of River Lots 32 to 35, Halcro Settlement, Tp. 46-26w2.

In Section 2, Tp. 48-25w2.

Around lakes in Sections 2 and 3, Tp. 43-3w3.

In Section 9 on road between Sections 8 and 9, 16 and 17, Tp. 37-3w3 to avoid a slough.

Through the south-west quarter of Section 34, Tp. 46-26w2.

In the north-east quarter of Section 33, Tp. 46-26w2.

District of North Alberta.

In Sections 4 and 9, Tp. 56-23w4.

To give access to school house and bridge Sections 9 and 16, Tp. 54-26w4.

In the south-east quarter of Section 28, Tp. 55-22w4.

Approaches to bridge Section 24, Tp. 53-23w4.

In Sections 17, 18 and 19, Tp. 54-26w4 to be substituted for part of Lac Ste Anne trail surveyed last year.

Diversion to include improved road at north-east corner of Section 24, Tp. 52-28w4.

To bridge to be built over creek on road allowance between Sections 4 and 5, Tp. 54-23w4.

Between Sections 21 and 22, Tp. 55-26w4.

Between Sections 3 and 4, Tp. 56-19w4 (resurvey).

In south-west corner of Section 21, Tp. 56-19w4.

Around lake in Sections 15, 11 and 10, Tp. 56-19w4.

Between Sections 13 and 14, Tp. 55-27w4 to avoid crossing of Riviere-qui-Barre.

In north-west quarter of Section 23, Tp. 51-25w4.

Location of north limit of portion of road allowance north of Section 33, Tp. 55-19w4.

Between Sections 2 and 11, Tp. 51-24w4 leading to bridge over Irvine Creek between Sections 1 and 2, Tp. 51-24w4.

Between Sections 20 and 21, Tp. 54-21w4.

To avoid a bend in Deep Creek where it crosses the road allowance between Sections 6 and 35, Tps. 55 and 56-20w4.

In Section 28, Tp. 56-19-4.

District of Centre Alberta.

Change of trail to Duhamel Bridge River Lot 40, Tp. 46-21w4.

Between Sections 29 and 30 and 20 and 19, Tp. 41-26w4 to avoid sloughs and creek along which road runs.

In the south-west quarter of Section 26, Tp. 35-1w5.

Between the north-west quarter of Section 27 and the north-east quarter of Section 28, Tp. 35-1w5.

Between the south-east quarter of Section 25 and the north-east quarter of Section 24, Tp, 35-1w5.

Between the south-east quarter of Section 27 and the north-east quarter of Section 22, Tp. 35-1w5.

Between the north-east quarter of Section 9 and the north-west quarter of Section 10, Tp. 35-1w5.

Between the east half of section 18 and the west half of Section 17, Tp. 35-1w5.

Between the south-west quarter of Section 15 and the north-east quarter of Section 10, Tp. 35-1w5.

To avoid a slough on the east boundary of Sections 12 and 13, Tp. 46-24w4.

South of Wetaskiwin to avoid sloughs on road allowance between Sections 1 and 2 and 11 and 12, Tp. 46-24w4.

In Section 21, Tp. 35-26w4 to avoid a slough on the road allowance.

To avoid hill between Sections 9 and 16, Tp. 38-27w4.

Right of way from Douglas St., Village of Lacombe, to the new traffic bridge over the Red Deer River.

Around a lake on the road allowance north of Section 32, Tp. 44-22w4.

In the south-west quarter of Section 17, Tp. 46-23w4.

In the north-east and north-west corners of Section 7, Tp. 46-23w4.

In the south-west quarter of Section 17, Tp. 46-24w4.

Between Sections 19 and 30, Tp. 46-21w4.

Diversion in the south-west quarter Section 3, Tp. 11-26w4.

Right of way for ditch, Section 15, Tp. 39-26-w4.

Change of surveyed road in Section 20, Tp. 38-27w4.

Expropriation survey of part of road west from Saskatoon.

District of South Alberta.

Between Sections 8 and 17, Tp. 20-2w5.

Between Sections 4 and 5, Tp. 20-28w4.

To Smith's Crossing of Nose Creek, Sections 3, 10, 14 and 15, Tp. 25-1w5.

On east boundary of Townships 21 and 22-3w5.

Change in location of part of surveyed road in Section 8, Tp. 21-3w5.

Through Section 33, Tp. 18-29w4 (part of Pekisko-High River road).

In the north-west quarter of Section 33, Tp. 23-1w5 to ford over the Elbow River.

To a bridge over Ghost River on the Morleyville trail in Section 13, Tp. 26-6w5.

In Section 8, Tp. 6-1w5.

Between Sections 19 and 24 and 19 and 30, Tp. 5-29w4.

Between Sections 24 and 25, Tp. 5-30w4.

Diversion of road from Caldwell to Leavitt through Sections 32 and 33, Tp. 2-27w4, and Sections 2, 3 and 4, Tp. 3-27w4.

In Section 5, Tp. 6-29w4 to avoid spring on road allowance.

Along the north boundary of Section 19, Tp. 6-29w4 to avoid crossings of Creek.

In the north-east quarter of Section 34, Tp. 6-30w4 to avoid railway crossings.

RESERVOIR SITES.

District of Saskatchewan.

In the west half of Section 35, Tp. 44-27w2.

In the last Annual Report the regulations which had been adopted regarding the issue of permits to fence in and occupy road allowances which are useless for public travel owing to natural obstructions, or which, if passable, are not yet required as roadways, were published in full, together with a schedule of permits which has been issued up to date of that report.

In the early part of last year applications were filed under those regulations for permission to fence large areas in Southern Alberta, and the protests filed against these applications and other general complaints made regarding the fencing of road allowances at different points in the Territories, led to a general consideration of the question of dealing with such roads. After consideration of the matter new regulations dealing with this important subject were approved by you under provisions of Section 28 of The Public Works Ordinance. These regulations are as follows:

REGULATIONS regarding Leasing of Road Allowances or Surveyed Public Highways.

In consequence of difficulties which have arisen in dealing with applications for the right to fence in and occupy surveyed road allowances or public highways which are not passable for travel or are not required at present for that purpose, the following regulations are prescribed by me under authority of Section 28 of The Public Works Ordinance:

(1) Any surveyed road allowance or public highway which is impassable for public travel, or not required for that purpose, may be leased

to any person desiring to fence in and occupy the same, who is granted such lease in accordance with these regulations.

(2) Persons desiring to obtain a lease of any road allowance or surveyed public highway shall file proper application therefor upon forms prescribed by the Department, and shall, if required to do so, publish notice of such application in the form given herein, in some local paper to be named by the Commissioner, for such period as he may order.

(3) The notice to be published as above required, shall be as follows:

Application for Lease of Road Allowance or Surveyed Highway.

Notice is hereby given that..................of................ has made application to the Commissioner of Public Works, Regina, for a lease of the following road allowance or surveyed highway, viz.,......
....

Any protest against the granting of the above mentioned lease must be forwarded to the Commissioner of Public Works within........... days from the date of this notice.

Dated at................ ....
.................190 . *(Applicant.)*

(4) When it is deemed expedient to do so, any applicant for a lease may be required to furnish, at his own expense, a report, illustrated by the necessary plan, from the District Surveyor and Engineer, with reference to the manner in which the public interests will be affected by the granting of the lease applied for.

(5) All leases granted for surveyed road allowances or public highways shall be for a term of one year, renewable for a like term from time to time in the discretion of the Commissioner.

(6) The rental to be paid for any road allowance or surveyed highway, leased as herein provided, shall be at the rate of four dollars ($4.00) per mile or fraction of a mile of length of such road allowance or highway, and such rental shall be payable in advance.

(7) The portion of any surveyed road allowance or highway which is required in connection with tree planting along such road allowance or highway shall be leased as herein provided, and the rental therefor shall be at the rate of one dollar ($1.00) per mile or fraction of a mile.

(8) All authorisations which have so far been issued for the right to fence in and occupy any road allowance or surveyed highway shall be cancelled on the thirty-first day of December, 1901, and parties holding certificates granting the right to occupy such road allowances or surveyed highways shall, if they desire to continue such occupancy, file proper application for the leasing of the same in accordance with these regulations.

(9) Nothing in these regulations shall be construed to refer to the transfer of the area contained in any road allowance or surveyed highway which it is agreed to grant in lieu of, or as part of the compensation for, the right of way for any other public highway surveyed and set aside for public use.

ARTHUR L. SIFTON,
Commissioner of Public Works.

It will be noted that the new regulations changed the system previously in force, and authorise the issue of a lease for road allowances or public highways not required for public travel, at a uniform rent of $4 per mile per annum.

All persons who held permits to occupy road allowances under the old regulations were notified that such permits would lapse at the end of the past year, and that proper application would have to be filed for a lease of such roads if the owners of adjoining lands desired to continue to fence them in.

Up to the end of the year three leases were granted under the new regulations, and immediately after the close of the year a number of applications were filed for leases of roads which had been fenced under permits issued under the old regulations.

Some objections have been made through correspondence with the Department, and through the columns of the Territorial press, to the provisions of the new regulations. It is claimed by some parties that the rent charged is excessive, and that the enforcement of these regulations will prove a drawback to the ranching industry. In making these objections the main fact that these road allowances are set aside under the Dominion Lands System of Survey, and transferred to the Territorial Government as highways, and that the public can demand their use for that purpose, has entirely been lost sight of. The criticism of the regulations is largely based upon the assumption that the land comprised in these road allowances should only be charged for as grazing land at 2½ cents an acre, or 20 cents for a mile of road allowance. This assumption is of course entirely wrong. In the first place the land in these road allowances is not in any sense public land available for lease for grazing, and the benefits obtained by the owner of adjacent sections through a lease of the road allowance dividing them are many times the value of the rent of $4 charged. He is in the first place saved the sum of at least $150 which it would cost to fence both sides of this mile of road allowance, and if water is obtainable on one section, and not on the other, the section cut off from such water is given access thereto owing to absence of fence on the road allowance. This privilege is of itself of incalculable value to the ranchman.

If the Government took the position that road allowances could not be fenced, and must be left open for travel, it might fairly be claimed that the possibility of successful ranching in certain districts would be seriously interfered with, and by adopting regulations which permit of the fencing of these road allowances they are assisting instead of injuring that important industry. This claim will, it is thought, be realised if the matter is looked upon in its proper light.

There is another feature of this question which must not be overlooked in considering the regulations, and that is the manner in which the small rancher is affected by the fencing in of large areas by the more extensive ranchers. In many cases the large areas purchased by the large ranche companies have been so located that they, if fenced as a block, give the owner the control of the grazing on adjacent areas belonging to the Crown, and the owner of a small band of cattle naturally objects to the owner of the large block being put in a position through fencing his land as a block to control this free grazing unless he pays something for the privilege.

Geographic Board.

During the past year a new branch of work has been undertaken, reference to which properly comes under the head of the Surveys Branch.

In preparing maps of a new country like the Territories serious troubles have arisen in geographical nomenclature owing to errors in orthography, duplication of names, erroneous translation of native names, and misapplication of names.

This important subject had been considered for some years by different departments of the Dominion Government, and by the Association of Dominion Land Surveyors, and the representations made finally led, in 1897, to the creation by an Order of the Governor General in Council, of a Geographic Board, consisting of representatives of all the Dominion Departments concerned in the issue of maps. That Board was authorised to rule upon all names used in issuing such maps so as to prevent as far as possible the duplication of names, and to correct the many mistakes made in orthography.

When the Geographic Board was constituted the Territorial Government directed the attention of the Dominion Government to the fact that, if the membership of the Board could be extended to include representatives of the different Provinces of the Dominion and the Territories, on the understanding that the Provinces and the Territories should then be governed by rulings of the Board in regard to names used on maps issued by them, uniformity of geographical nomenclature would be assured throughout the Dominion. This suggestion was adopted, and the undersigned was appointed by an Order of the Lieutenant Governor in Council dated January 23rd, 1900, the representative on the Board for the Territories. Since that date some five hundred names affecting maps of the Territories have been dealt with, and the work of looking up authorities, and advising with the Board by correspondence has added materially to Departmental work during the past year.

In connection with the work done through the Geographic Board regarding names to be used on Territorial maps, I would direct attention to the desirability of issuing during this year a new edition of our three sheet map of the Territories. The present edition was issued in 1898, and owing to the extension of surveys and rapid development in settlement which has since taken place, is very much out of date. We are almost daily in receipt of applications for copies of the map, and it is very desirable, in view of the large movement of immigrants to the Territories now taking place, that we should have, for reference and distribution, an up to date edition of our map.

A revised edition of fifteen thousand copies can probably be issued for about $1,700.

ENGINEERING BRANCH.

Staff.........................	Assistant chief engineer. Clerk and draughtsman.

In the early part of the past year Mr. J. T. Child, who had filled the position of Assistant Chief Engineer since 1899, resigned, and the vacancy thus caused was filled by the appointment of Mr. John Stocks, C.E. It was also found necessary, owing to the great increase of work, to increase the staff of the branch by the appointment of a clerk and draughtsman.

The work of the Department, generally spoken of as "Public Works," is carried on through the Engineering Branch, and the operations of the branch during the past year therefore illustrate in a detailed manner the marked increase in Departmental work already referred to.

The work of the branch is referred to under the headings adopted in the last two Annual Reports as follows:

Maintenance and repair of buildings.
Repairs to public works.
Construction of bridges.
Construction and maintenance of roads.
Maintenance of ferries.
Construction and maintenance of fireguards.
Providing water supply.
Construction of drainage works.

The office work of the branch, outside of correspondence, during the past year was as follows:

Number of plans prepared, indexed and recorded	128
Number of specifications prepared, indexed and recorded	118
Number of contracts prepared and recorded	30
Number of bills of quantities for materials prepared	88

During the year the Assistant Chief Engineer has, in addition to work at headquarters, laid out and superintended the work of constructing most of the larger bridges built, and has visited and reported upon other works in progress or under consideration.

By providing the clerk and draughtsman in the branch already referred to, who can look after details during his absence, it is now possible for the Assistant Chief Engineer to spend much more of his time in the field, and thus give our larger engineering works the technical supervision which, up to last year, we were unable to provide for.

MAINTENANCE AND REPAIR OF BUILDINGS.

Nothing more than minor repairs were undertaken either in the Legislative or Departmental buildings last year. Both the Legislative and the northerly Departmental buildings are in such a condition that nothing short of extensive repairs or practical reconstruction would materially improve them, and the southerly Departmental building is also in need of considerable repairs and improvements. It would, no doubt, be unwise, until something definite is settled regarding the permanent location of the new Government Buildings, which must be built in the near future, to incur any large expenditure in improving the present Legislative and Departmental quarters, but the necessity for additional room, and a Legislative Chamber and Departmental offices, with some approach to modern conveniences and appliances, is every day becoming more pressing.

The crowded condition of the Departmental offices resulted during the past year in quarters having to be found in town for the Departments of Education and Agriculture, and to provide them with offices a lease was taken of the LeJeune Block on Scarth Street. This change has relieved the immediate pressure for room in the northerly Departmental building, but the Treasury Department in the southerly building is still very much over crowded.

The over crowded condition of the present Legislative Chamber, and the inadequacy of the accommodation for the Speaker or officials of the Legislative Assembly has been referred to in previous reports, but the absolute necessity of taking steps during the present year to improve these quarters is now apparent. It may be assumed that the increased population shown by the late census will necessitate some addition to the present number of members of the Legislative Assembly, but, under present circumstances, it is quite impossible to provide room for any such additional members in the existing Legislative Chamber. That Chamber no doubt met the requirements of meetings of the original Council of the Territories, and the first or second Legislative Assembly, but it has been over crowded, uncomfortable and unhealthy for some years, and is totally unsuited to the purpose for which it is now used.

The work of improving the grounds surrounding the Government Buildings was continued during the year, and considerable progress was made. When the trees which have been planted attain reasonable growth much needed shelter will be provided, and it will then be possible to improve the grass and have a much better showing of flowers during the summer season. The present water supply is, however, inadequate for the grounds, and a second well with windmill and tank will have to be provided in the near future.

The lease under which quarters were provided for the Normal School in one of the Public School Buildings here expired in September last, but has been renewed for another year. Complaint is, however, made by the Director of Normal Schools that the quarters provided under this arrangement are becoming very much over crowded, and the Trustees of the Public School have intimated that they will be unable to again renew the lease, as they will require all the room for public school purposes. It is, therefore, evident that before the expiration of the present lease, other and more commodious quarters will be required for Normal School purposes.

At Edmonton temporary quarters were rented during the year for Normal School classes, and that arrangement can probably be depended upon to provide quarters for Normal School work in the West for sometime to come.

REPAIRS TO PUBLIC WORKS.

In the last Annual Report attention was directed to the fact that a number of the larger wooden bridges which had about reached the limit of their life would require to be reconstructed in the near future. Several of these bridges had to be rebuilt last year, and that work, with a large amount of other necessary repairs, brought our expenditure during the year under this head up to $33,082.64.

The Department now owns between twelve and thirteen hundred bridges in the Territories, and the annual charge for repairs of these structures must necessarily constitute a serious charge upon the annual appropriation for public works. The policy which is being carried out of providing steel superstructures for the larger new bridges will, of course, reduce the cost for repairs on such structures, but even with bridges of that character the cost of renewing the bridge flooring from time to time involves considerable expenditures. An annual charge of $25.00 on all our bridges for repairs would involve an expenditure of about $32,000, and as that is certainly not an outside estimate, it is quite evident that, with our already large and rapidly increasing list of bridges, the annual cost of keeping them in a safe state for public travel must be large.

The repair and reconstruction of bridges forms the greater portion of the expenditure under the repair vote each year, but we also make expenditures under this head for repair of dams, ferries, culverts, wells, roads, tools and implements.

Reference has been made in past Annual Reports to the large number of dams in Eastern Assiniboia belonging to the Government, and to the question of maintaining these dams. During wet seasons such as we experienced last year the necessity for the water held in the reservoirs created by these dams is, of course, not so pressing as during dry years, but many of them were seriously damaged by the unusual freshets of last spring, and will have to be repaired in view of the probable return of a cycle of dry seasons in the near future. Repairs were made during the past year to several of the larger dams, including those at Regina, Wapella and Grenfell, but we were unable to complete needed repairs at a number of other large dams which had been washed out or seriously damaged by the spring floods. Attention is again directed to the necessity for having an inspection made of the dams belonging to the Department, which now number some two hundred and seventy, with the object of surveying the right of way for the reservoirs created by these dams, and providing proper information to enable a selection to be made of those which should be permanently repaired and maintained.

The very exceptional freshet in the Wascana Creek last spring seriously damaged the large dam erected on that stream at Regina. In fact, it was only by hard work of a large gang of men, employed almost constantly night and day for some days, that the dam was saved from total destruction. This dam creates one of the largest reservoirs in Eastern Assiniboia, and its destruction would have let loose a body of water which would have destroyed all the bridges on the Wascana down to the Qu'Appelle River including the railway bridge, and would have endangered the lives of many of the residents living along the stream below the dam.

As soon as the freshet subsided permanent repairs were made to this dam, including the construction of a new and enlarged spillway, and the structure is now in shape to withstand the heaviest spring floods.

Among the larger bridges, the repair of which was undertaken last season, was the bridge over the Red Deer River at the town of Red Deer, two spans of which were destroyed when the ice went out of the river last spring. The construction of this bridge, which is one of the largest of our steel bridges, was referred to at some length in the last Annual Report, and it was thought that the style of piers which has been erected would withstand the high water and ice flood in this stream, and provide a permanent highway bridge at that point. The bridge had only been open for traffic for a few days before the accident occurred, and the loss of the two spans, and consequent interruption to traffic naturally caused considerable criticism of the Department. Fortunately we were able to make arrangements with the railway company for the use of their bridge at that point for traffic purposes, so that only a few days' delay was caused to those desiring to cross the river at that point.

So soon as the water went down a thorough investigation was made to determine the cause of the failure of the pier resulting in the loss of the two spans. That investigation indicated that the river at the bridge site and for some distance above was clear of ice for some hours before the bridge was destroyed, although the water was very high. The ice had jammed some few miles above the bridge and when it broke the ice moved down the river with a depth of at least ten feet. This large body of ice first encountered the piers of the railway bridge situated a short distance above the traffic bridge, and one particularly large mass which was deflected from one of the railway piers then encountered the most northerly pier of our traffic bridge and destroyed it, letting down the ends of the two spans of the superstructure resting thereon. The investigation also indicated that the pier in question was subjected to a strain which smashed heavy fir timbers 12x12 inches in size and faced with boiler plate, but showed that the pier would probable have withstood the strain had it not been damaged by the first run of ice in the river in such a way that most of the stone filling of the pier had been forced out of place. It was claimed that in filling this pier the contractor had departed from the provisions of the specification and had used some quantity of gravel instead of broken stone as called for, but as the pier was totally destroyed it was not possible to settle that point.

In reconstructing the destroyed portion of the Red Deer bridge we have strengthened the piers as far as possible so as to make them safe should another such unusual run of ice occur in the stream, and the bridge will be completed and ready for traffic before the ice goes out during the coming spring.

Although unusual floods were experienced during the past season on all the streams in the Territories, none of our new bridges, with the exception of the Red Deer bridge above referred to, were seriously damaged. Several of the old large bridges were, however, totally destroyed and a large number more or less damaged, and at several points serious inconvenience was caused to the travelling public before we were able to get these bridges repaired or reconstructed.

CONSTRUCTION OF BRIDGES.

The bridges constructed during the past year are shown in the schedule given hereunder. It will be noted that one hundred and thirteen bridges were built as compared with one hundred and thirty-seven built during the previous year. Comparison of the schedule published in the report for 1900 with that given below will, however, show that a greater proportion of large bridges were constructed last year than were completed during 1900, and it will be noted that several of those constructed last season were large and important bridges across western streams at points where bridges have been required for some years

The sum of $69,296.50 was spent during the past year in completing the bridges shown in the accompanying schedule.

SCHEDULE of Bridges Constructed 1901.

NAME OF STREAM AND CROSSING	LOCATION				REMARKS
	S	T	R	M	
Assiniboine River at the "Barrier"	24	29	32	1	Steel span 80 ft. on double pile piers, with 18 ft. approach at each end.
Antler Creek, North Branch	30	4	30	1	Truss span 30 ft. on pile bents.
Antler Creek, North Branch	2 3	3	30	1	Truss span 30 ft. on pile bents.
Amisk Creek	22 27	50	18	4	Truss span 50 ft. on framed bents.
Arnold's Creek	11 12	35	1	5	Span 18 ft. on framed bents.
Blindman River on C. & E. Road	16	39	28	4	6 spans of 24 ft. on pile bents.
Blindman River on C. & E. Road					Steel span 125 ft. on double pile bents, with 20 ft. approach at south end.
Battle River	33	42	26	4	Steel span 60 ft. on pile piers, with 16 ft. approach at each end.
Battle River at Gould's Crossing	31	45	22	4	Steel span 80 ft. on pile piers.
Battle River (branch of)	5 6	46	23	4	Truss span 30 ft. on pile bents.
Bow River at Cochrane	35	25	4	5	Steel spans, two 150 ft. and one 100 ft., on pile and crib piers, with approaches of 50 ft. and 24 ft. (substructure built 1900).
Beaver Creek, Assa	5 8	33	4	3	Truss span 30 ft. on pile bents.
Boggy Creek at McCallum's	15 16	18	19	2	Span 18 ft. on pile bents.
Boggy Creek	27 28	18	17	2	Span 18 ft. on framed bents.
Boggy Creek at Anticknapp's	7 12	18	18 19	2	Reconstruction of truss span 24 ft. on pile bents.
Boggy Creek west of Cullum's	31 32	18	20	2	2 spans 18 ft. on pile bents.
Boggy Creek on road from bluffs to Regina	11 12	18	19	2	Span 20 ft. on pile bents.
Bigstone Creek	32	46	24	4	Reconstruction of small bridge.
Bigstone Creek	7	46	25	4	Truss span 25 ft. on pile bents, with 18 ft. approach at each end.
Big Red Deer River on Battleford and Onion Lake Road		52	24	3	Log bridge, two 24 ft. truss spans on log crib piers with 16 ft. approach at each end.
Buffalo Creek	2 3	35	28	4	Log bridge 18 ft. span on log abutments.
Buffalo Creek	24 25	35	1	5	Reconstruction 20 ft. span on framed bents.
Carrot River	9 16	45	21	2	Reconstruction 4 spans of 20 ft. on pile bents.
Cromarty's Creek	18	46	24	2	18 ft. span on framed bents.
Coal Creek	24	26	5	5	Reconstruction truss span 30 ft. on framed bents, south approach two spans 20 ft. and one 24 ft., north approach one span 12 ft.
Coal Lake Creek	35	46	22	4	Truss span 40 ft. on pile bents, with 15 ft. approach at each end.
Crooked Hill Creek		31	3 4	2	One 20 ft. and two 10 ft. spans on frame bents and mud sills.
Charette's Creek on Battleford and Onion Lake Trail	24	47	18	3	20 ft. span on pile bents.
Chipman Creek at Lavasseur's	19 30	6	29	4	Reconstruction, two spans 23 ft., one span 18 ft. on frame bents.
Creek	30	14	3	2	20 ft. span on pile bents.

SCHEDULE of Bridges Constructed 1901.—*Continued.*

NAME OF STREAM AND CROSSING	LOCATION				REMARKS
	S	T	R	M	
Creek	8 9	17	7	2	18 ft. span on frame bents.
Creek on C. & E. Road	24	38	28	4	Reconstruction four 20 ft. spans, one 10 ft. span on pile bents, mud sill at west end.
Coulee	7 12	20	28 29	4	18 ft. span on pile bents.
Coulee at Stone's	15 16	43	3	3	Truss span 30 ft. on frame bents.
Dog Pound Creek	21 28	32	3	5	Truss span 36 ft. on piles with 40 ft. approach at one end and 20 ft. at the other on pile bents.
Dog Pound Creek at Pryce's	34	30	3	5	Truss span 50 ft. on double pile bents, two spans 20 ft. at one end on pile bents.
Duck Lake Narrows	32	43	2	3	Reconstruction four spans of 18 ft. on pile bents.
Elbow River, Mission Bridge					Reconstruction steel spans, two 80 ft. and one 100 ft. on pile and timber crib piers and abutments.
Eagle Creek	7 18	35	1	5	Truss span 24 ft. on pile bents.
Englishman's River on Battleford and Onion Lake Trail					Three spans of 18 ft. on pile bents.
Fish Creek on Calgary and Macleod Trail					Reconstruction six spans of 24 ft. on pile bents.
Goose Hunting Creek	21	45	20	2	Reconstruction small bridge on pile bents.
Goss Creek	26	24	4	5	Span 20 ft. on pile bents.
Gilbert Creek	34	16	18	2	Reconstruction 16 ft. span on pile bents.
High River at Alley's Ford	17	20	28	4	Steel spans, two of 125 ft. on pile and crib piers with 20 ft. approach at west end and 40 ft. at east end on pile bents.
Horse Creek (branch of)	5	27	4	5	Log bridge, one 20 ft. and two 10 ft. spans on log cribs and mud sills.
High Hill Creek	26 27	18	23	2	Span 20 ft. on frame bents.
Irvine Creek at Marchal's on main road, Beaumont	2	51	24	4	Truss span 24 ft. on pile bents.
Jackfish Creek at Flamand's	15	46	17	3	Extended five spans of 20 ft. on pile bents.
Jackfish Lake Narrows	30	47	16	3	Reconstruction log bridge nine spans of 20 ft. on pile bents.
Little Whitesand River	28	27	4	2	Reconstruction truss span 36 ft. on pile bents.
Lee's Creek	31	2	25	4	Three spans of 24 ft. on pile bents.
Little Red Deer River west of Innisfail	19 30	35	1	5	Log bridge, seven spans of 20 ft. on pile bents.
Maple Creek on surveyed trail	9	10	26	3	Truss span 36 ft. on double frame bents.
Maple Creek	22 23	14	26	3	Truss span 36 ft. on double frame bents.
Moose Mountain Creek	23 24	7	3	2	Reconstruction two truss spans of 30 ft. on pile bents.
Moose Mountain Creek	14 15	14	10	2	Span 20 ft. on frame bents.
Moose Mountain Creek	28 29	7	4	2	Truss span 40 ft. on double pile bents.

SCHEDULE of Bridges Constructed 1901.—*Continued.*

NAME OF STREAM AND CROSSING	LOCATION				REMARKS
	S	T	R	M	
Moose Mountain Creek	5 6	8	5	2	Reconstruction truss span 30 ft. on pile bents, with 30 ft. approach at north end on pile bents.
Melfort Creek, Rush's Bridge	19 30	45	18	2	Reconstruction 20 ft. span on pile bents.
Melfort Creek, Cameron's Bridge	33 4	44 45	18	2	Reconstruction 18 ft. span on pile bents.
Melfort Creek	36	45	19	2	Reconstruction 18 ft. span on pile bents.
Mather Creek	20 21	34	27	4	Span 18 ft. on frame bents.
Montgomery Creek	33 4	13 14	3	2	Truss span 30 ft. on pile bents.
McFarlane's Crossing	14	47	27	2	Reconstruction 20 ft. span on frame bents.
Nose Creek on C. & E. Road	34	24	1	5	Reconstruction truss span 40 ft. on double pile bents.
Nose Creek on North Blackfoot Trail	13	24	1	5	Reconstruction truss span 40 ft. on double pile bents.
Oldman's River, Middle Fork	29	7	1	5	Steel span 125 ft. on pile and crib piers, five spans of 20 ft. as approach at one end on pile bents.
Old Man's Creek on Battleford and Onion Lake Trail					Two spans of 18 ft. on pile bents.
Pipestone Creek, Alta	8	47	23	4	Truss span 50 ft. on double frame bents.
Pipestone Creek, Assa. Pipestone Creek, Gilman's	28 29	12	31	1	Reconstruction truss span 40 ft. on double pile bents.
Pipestone Creek	19 24	14	2 3	2	Reconstruction truss span 30 ft. on pile bents.
Pipestone Creek, Lippentott Bridge	35 1	10 11	30	1	Reconstruction steel span 50 ft. on double pile bents with 16 ft. approaches.
Pipestone Creek, Garvin's Bridge	7 12	14	1 2	2	Span 20 ft. on pile bents.
Pipestone Creek, Battleford and Onion Lake Trail					Three spans 18 ft. on pile bents.
Point-Aux-Pins Creek	28 29	53	22	4	Reconstruction 18 ft. span on pile bents.
Pheasant Creek	13	20	11	2	Reconstruction 18 ft. span on frame bents.
Qu'Appelle River at Tiree	10 11	19*a*	8	2	Reconstruction steel span 80 ft. on pile piers with 20 ft. approach at both ends.
Qu'Appelle River at Hazelcliffe	16 17	18	33	1	Reconstruction steel span 80 ft. on pile piers.
Ross Creek	23	12	5	4	Reconstruction truss span 50 ft. on pile piers with 18 ft. approach at both ends.
Ross Creek, Alta	33	53	21	4	Span 16 ft. on frame bents.
Rosebud Creek	26	30	1	5	Two 40 ft. truss spans on pile bents.
Rosebud Creek	19 20	31	1	5	20 ft. span on frame bents with 12 ft. approach.
Red Deer Creek	27 28	47	26	2	Reconstruction truss span 24 ft. on pile abutments.
Red Deer River at Red Deer					Reconstruction of piers and abutments for spans destroyed, spring of 1901 (not completed).

SCHEDULE of Bridges Constructed 1901.—*Continued.*

NAME OF STREAM AND CROSSING	LOCATION				REMARKS
	S	T	R	M	
Red Deer River near Tindastool		36	28	4	Construction of substructure for three steel spans 125 ft. each (not completed).
Red Deer River on Battleford and Onion Lake Road		52	24	3	Log bridge, truss spans, two 24 ft. on crib piers and approaches.
Rat Creek between River Lots 18 & 20 Edmonton Settlement					Span 16 ft. on pile bents.
Sturgeon River	4 9	56	23	4	Reconstruction log bridge, four spans 20 ft. on pile bents.
Sturgeon River (branch of)	10 15	55	26	4	Span 18 ft. on frame bents (reconstruction).
Stony Creek on C. & E. road	34	29	1	5	Reconstruction truss span 30 ft. on pile bents.
Stony Creek near Carstairs	11 12 13 14	30	2	5	Truss span 24 ft. on frame bents.
Stony Creek on Trail from Wetaskiwin	21 28	46	20	4	Three spans of 18 ft. on pile bents.
Stony Creek, Saskatoon, at Whittig's	17 18	45	18	2	Truss span 30 ft on pile bents.
St. Mary's River	1	2	25	4	Steel spans, two 125 ft. on pile and crib piers with 20 ft. approach at each end ; three spans of 20 ft. on pile bents over an old channel.
Souris River	20 29	1	34	1	Steel span 80 ft. on pile piers with 18 ft. approach at one end.
Squaw Head Creek	22 27	16	2	2	Span 18 ft. on pile bents.
Squaw Head Creek	11 14	16	2	2	Piles driven for six spans of 20 ft.
Summerberry Creek	1 36	17 18	9	2	Span 16 ft. on frame bents.
Scissors Creek	29 30	16	31	1	Span 18 ft. on frame bents.
Spring Creek	15	20	1	5	Span 20 ft. on frame bents.
Subway Bridge on Road Lacombe to Gull Lake	25	40	27	4	Frame bents backed up with poles.
Thunder Creek	15 16	17	28	2	Two spans 18 ft. on pile bents.
Twenty Mile Creek (branch of)	20	41	14	3	Span 18 ft. on pile bents.
Wascana Creek	4 5	19	21	2	Reconstruction of truss span 32 ft. on pile bents with 25 ft. approach at each end.
Wascana Creek	9 10	16	18	2	Reconstruction of truss span 40 ft. on pile bents.
Wascana Creek	21	18	21	2	Reconstruction of truss span 36 ft. with 20 ft. approach at one end and 40 ft. at the other, all on pile bents.
Wascana Creek	23 26	17	19	2	Span 18 ft. on pile bents.
Wascana Creek	33 4	14 15	17	2	Four spans of 20 ft. on pile bents.
Whitesand River	23 24	29	4	2	Two truss spans of 40 ft. on pile piers with 20 ft. approach.
Whitesand River	1	52	25	4	Reconstruction truss span 36 ft. on pile bents with 20 ft. approach at one end and 40 ft. at the other, all on piles.
Wapella Reservoir (bridge over)	13	15	1	2	Twelve spans of 20 ft. on pile bents.

Among the bridges scheduled above the following are deserving of special mention :

Bridge over Assiniboine River at the Barrier.

This is the second steel bridge which we have built over the Assiniboine River, and is located about half way between the bridge erected over this stream in 1900 at Fort Pelly, and the Manitoba boundary. A bridge at this point has been asked for during the past three years, and the necessity for such a structure became particularly marked last spring owing to the loss of life resulting from attempts to ford the river in that vicinity during the spring freshets. The bridge erected is one of our standard eighty foot through steel spans on double pile piers with a short approach at each end, the structure being designed to afford the least possible obstruction to the stream. This bridge will prove a great convenience to the settlers on both sides of the river in that vicinity, and will be largely used in connection with the settlement which will follow the extension to the west of the Gilbert Plains Branch of the Canadian Northern Railway which is likely to cross the Assiniboine River in the immediate vicinity of the bridge.

Bridge over Blind Man River on the Calgary & Edmonton Road.

A wooden bridge was built over this stream at this point in 1885, and repairs to that bridge have been made every year for the past four years. The bridge has reached its limit of life and was totally destroyed during the exceptionally high water of last spring, The river at the bridge site flows between steep banks with too great a depth of water even at low water to make fording possible, and the destruction of the old bridge made travel over the road at that point impossible.

In designing the new bridge it was decided to provide a span reaching from bank to bank so as not to necessitate any obstruction to the stream, and we therefore erected a through steel span of 125 feet in length on double pile abutments. This will provide a substantial and permanent highway crossing.

Bridge over Battle River West of Ponoka.

The country west of Ponoka has settled up very fast during the past two years, and the settlers living west of the Battle River have experienced great difficulty in crossing that stream to reach Ponoka, their market centre. To overcome that difficulty a bridge with sixty foot through steel truss span was constructed across Battle River in Section 33, Township 42, Range 26, west of the 4th Meridian. A road had to be surveyed to this bridge site, as will be noted from the schedule of surveys completed during the year, and this road and the bridge erected will provide settlers with a permanent crossing of the stream on their market road.

Bridge over Battle River at Gould's Crossing.

Wetaskiwin is at present the market centre for the large district lying east of that point, which is very thickly settled. A large portion of this settlement is cut off from their market centre by the Battle River, and to provide access to Wetaskiwin an eighty foot through truss steel span bridge was built last year at Gould's Crossing of the river, Section 31, Township 45, Range 22, west of the 4th Meridian.

This bridge affords a crossing for the settlers living south of the river and east of Dried Meat Lake, and will prevent a long detour being made by these settlers during high water in the river to reach Wetaskiwin.

Bridge over Bow River at Cochrane.

In the last Annual Report a full description of this bridge, which is the largest bridge so far constructed by the Department, was given. The steel superstructure of this bridge was erected in February of last year, and the bridge opened for traffic before the ice went out in the spring. The water in the Bow River was unusually high during the spring freshet of last year, but no damage was done to the bridge, and a permanent highway crossing is assured at that point.

This bridge comprises a total length of four hundred and eighty feet, and it may be noted in connection with its construction that the cost of the bridge is much less than for any other bridge of similar design west of Lake Superior.

Bridge Over Carrot River on road Prince Albert to Kinistino, Sections 9 and 16, Township 45, Range 21, West of the Second Meridian.

A wooden bridge was erected over this stream at this point some years ago, but was destroyed by the exceptionally high water last spring. In reconstructing this bridge, which is on the main highway and much used, the Department was urged to provide a steel superstructure, but the long distance, some fifty miles, which the steel would have to be hauled from Prince Albert, the nearest railway point, prevented the erection of a steel bridge. The new bridge consists of four twenty foot spans on pile bents, and will, it is thought, provide a substantial structure at this point for some years. It is evident that the early construction of the Canadian Northern Railway through the Kinistino district will make a marked change in the market centres and the roads thereto, and the probability is that several of the bridges in that district, which are now located on main east and west roads, will not be so much used when the travel is diverted to north and south roads located to points on the new railway line.

Bridge over the Elbow River at the Mission Crossing, Calgary.

This bridge is located on the main road from the City of Calgary to the south. at the site where a wooden bridge, locally known as the "Mission Bridge," was constructed across the Elbow River some years ago. The old wooden bridge had become unsafe, and in rebuilding the structure it was decided to erect a modern and substantial steel highway bridge. The new bridge consists of three through steel spans, two of eight and one of one hundred feet, with about one hundred feet of approach on south end of bridge. The substructure for bridge consists of pile and timber crib piers and abutments stone filled, and on the north side it was found necessary to build quite an extensive protection wing along the bank to prevent further erosion of the bank at that point.

This bridge is subjected to an exceedingly heavy traffic, but the present structure will provide for all needs for many years to come.

Bridge over Fish Creek on Calgary-Macleod Road.

The old bridge at this point was carried away during the very heavy floods of 1900. A new wooden bridge, consisting of six spans of twenty-four feet each on pile bents, was built in the early part of last year, but the new bridge was damaged by the floods of last spring and had to be repaired during the summer. Fish Creek is one of the mountain streams which become raging torrents during the spring freshets, but become almost dry during the latter summer months of some seasons. To build a large truss span which will not obstruct the stream would cost a large sum of money, and when the stream is almost dry a bridge of that kind looks absurd and is spoken of by those who do not understand the situation as a useless waste of money. The new wooden bridge erected on Fish Creek last year, having withstood the heavy flood of the spring, will probably stand for some years, but this stream becomes so "wild" and carries such a large volume of water during the spring freshets that nothing except a bridge spanning the stream without any obstructions in the channel is sure to stand.

Bridge over Middle Fork of Old Man River, Sec. 29-7-1-5.

For some years there has been great necessity for a bridge over the Middle Fork of the Old Man River to enable the residents north of that stream to reach Pincher Creek and points on the Crow's Nest Railway. This stream, which flows out of the Crow's Nest Pass, like all mountain streams, is liable to sudden freshets, and has a very rapid and deep flow of water during spring floods. The bridge which has been constructed is located at a central point to serve the settlers in the Rock Creek, North Fork and Livingston districts. It consists of a through steel span of 125 feet in length, with an approach at south end consisting of five twenty foot spans on pile bents. The substructure for steel span consists of filled pile and crib piers, and it is thought that a good and permanent crossing of this stream has now been provided.

Bridge over Qu'Appelle River at Tiree.

One of the main crossings of the Qu'Appelle River north of Grenfell is at Tiree. At that point a wooden bridge was constructed some years ago, which had reached its limit of life and had to be replaced last year. The new bridge consists of one of our standard eighty foot steel spans on pile piers. With the new bridge at Hazelcliffe Crossing of this stream, mentioned below, we now have ten steel bridges across the Qu'Appelle River, and as all these bridges are built to span the stream without any obstruction in the channel, they are giving good satisfaction, and provide permanent crossings of this stream for the very heavy traffic resulting from the haulage of the grain from settlements north of the river to market centres on the main line of the Canadian Pacific Railway.

Bridge over Qu'Appelle River at Hazelcliffe.

The old wooden bridge at this crossing was one of the first bridges erected across the Qu'Appelle River. It had reached its limit of life, and in addition had been badly damaged by the high water of last spring. The new bridge erected is a standard eight foot steel span on pile piers which will provide a permanent structure at this important crossing.

Bridge over the Red Deer River at Tindastoll.

Almost immediately above the Town of Red Deer the Red Deer River turns sharply to the south and for some twenty miles flows in a channel almost parallel to and only a short distance from The Calgary & Edmonton Railway. As a result the large settlements in the Tindastoll and other districts lying west of the River are entirely cut off during the greater part of the year from access to market centres. At the Tindastoll crossing of the stream, about three miles west of Innisfail, we have, during the past three years endeavoured to provide a crossing by operating a ferry. The ferry service, however, proved very unsatisfactory owing to the fact that during periods of both high and extreme low water it was impossible to operate the ferry, and crossing could only be made with a small boat. During the extreme flood of last spring the ferry scow was carried away and the cable pulled down, and for a long interval the residents in the large Tindastoll settlement west of the river were unable to get across to Innisfail, without going around some twenty miles *via* the railway bridge at the Town of Red Deer.

The construction of a bridge over the Red Deer River at the Tindastoll crossing, to obviate the above mentioned trouble, has been urged upon the Department for the past two years, several largely signed petitions asking for the erection of the bridge having been received. A personal inspection of the crossing at this point was made by you during the summer and, in company with Mr. Stocks, Assistant Chief Engineer, Mr. Laurie, District Engineer, I subsequently made an examination of the river in the vicinity of the crossing, and we located a good bridge site about one mile below the old ferry crossing. It was decided to undertake the construction of a bridge at that point, and late in the fall work on the substructure was commenced. The bridge will consist of three through steel spans of 125 feet each in length on a substructure of pile and timber filled piers and abutments. In designing the piers and abutments we have endeavoured to provide for the very high water and strong run of ice which is to be expected almost every spring, and are making the piers as strong as possible to withstand the great strain to which they are subjected at that time.

This bridge will be ready for traffic before the ice goes out in the spring, and will fill a long felt and urgent want in providing a safe crossing of the stream at all times of the year.

Bridge over St. Mary's River at Indian Ford south-east of Cardston.

The St. Mary's River is one of the streams in Southern Alberta which is subject to heavy freshet discharge in the spring and to sudden rises of the water in the summer. Owing to these facts, and to the rapid flow of the water in the stream at all seasons, a bridge over the stream at or near the old Indian Ford south-east of Cardston has been a pressing need for some time, and that need has become more accentuated during the past two years owing to the rapid settlement of the district south and east of the river, resulting from the completion of the Canadian North-West Irrigation Company's canal heading in this stream, and to the inability of these settlers during high water in the stream to reach Cardston, their market point

Provision having been made for a bridge over this river, a careful inspection of the stream was made and the site for the bridge located near the old Indian Ford in Section 1, Township 2, Range 25, west of the 4th Meridian. The bridge consists of two through steel spans of 125 feet each in length on a substructure of pile and crib filled piers, the piers being specially designed to withstand the heavy flow of ice, water and drift in this stream. The substructure for the bridge was completed before the close of the year, and it is expected that the steel of the superstructure will be in place and the bridge ready for traffic before the ice goes out in the coming spring.

Bridge over Souris River between Sections 20 and 29, Township 1, Range 34, west 1st Meridian.

In the Souris district the Souris River forms a serious obstacle to residents south of the stream in reaching market points on the south-western branch of the Canadian Pacific Railway, and several bridges over this stream have been asked for. In 1900 we constructed a bridge south of Glen Ewen to afford access to that point, and last year we constructed a second bridge on the site above described, that point being the most important of the several sites at which bridges are asked for. The bridge constructed is one of our eighty foot through steel spans on substructure of double pile bents, and it will provide a crossing at a point where a bridge was badly needed.

METHOD OF CONSTRUCTING BRIDGES.

During the past year, as will be noted from the statement of contracts let, a radical change was made in our method of constructing bridges. Previous to 1901 the system had been to construct all bridges by contract, but last year that system was abandoned and the principle adopted of constructing all our bridges by employing competent bridge foremen and bridge gangs, and paying them by the day.

This change was due to certain facts based upon our experience of the contract system which it may be of interest to explain somewhat fully. In the first place it may be stated that we have not as yet in the Territories any considerable number of men who make bridge contracting their business, nor have our bridge contracts been sufficiently large to make it worth while advertising for tenders outside the Territories with the object of attracting men of that class in the older provinces. As a consequence we found that bridge contracts were being undertaken by men poorly qualified for this character of work, both in experience and financial standing.

In the second place, we found that the majority of men who tendered on our bridge contracts had not sufficient knowledge of that class of work to enable them to estimate with any degree of intelligence on the structures they were offering to build, and the tenders submitted often showed a wide range between the highest and lowest bid, with the result that if the contract was let to the lowest tenderer we, in many cases, knew that the contractor was undertaking the work at a price which precluded the possibility of his living up to the plan and specification, or satisfactorily fulfilling his contract.

We had, therefore, to maintain a constant and expensive supervision and inspection of the work both during its progress and after its completion.

The further difficulty was experienced that much valuable time during our short season for bridge work was lost in advertising for tenders, and additional delay and trouble arose from the fact that contractors in many instances were unable to obtain, in a reasonable time, from British Columbia lumber firms the class of timber required in constructing our larger bridges.

In view of these facts I strongly recommended, in the beginning of the year, that the contract system should be abandoned for day labour, and that recommendation having been approved, our bridges, with one or two exceptions, were, as above stated, constructed under the latter system during the past year.

Thirteen bridge gangs were employed, each under a competent foreman, and each outfitted with necessary pile driver and outfit of tools to enable them to carry on their work expeditiously and satisfactorily. The bridges to be constructed were divided among these gangs so as to give each a definite route to follow in constructing them, and to prevent as far as possible delays and loss of time, the lumber and timber required for each structure was ordered direct from British Columbia lumber firms through their Territorial agents, and shipped in carload lots to nearest railway point to bridge site.

In some few cases delay resulted in the delivery of timber and lumber, but on the whole the system of direct purchase of lumber worked satisfactorily, and the general system of day labour in constructing the bridges proved a great improvement on the contract system hitherto in force.

Not only did the day labour system result in more prompt construction of the bridges, but the work in all cases was better done and the cost of the work materially lessened. Possibly when the population of the Territories has largely increased and we have a resident class of competent contractors, and when the character of our structures will make it worth while for that class to devote their time to Government contracts, it may be found advantageous to return to the contract system, but under existing conditions our experience of last year conclusively proved that the day labour system is the correct one.

It may be explained that in building steel bridges contracts were, of course, let, after receiving tenders, for the steel superstructures, delivered at nearest railway points, but in all cases these steel superstructures were erected by our own foremen employed by the day.

It will be seen from the schedule of bridges previously given that thirteen new steel bridges were erected during the year. These, with the thirty-seven steel bridges previously erected, make fifty now owned by the Department.

CONSTRUCTION AND MAINTENANCE OF ROADS.

The wet season of 1901 interfered very seriously with our attempt to complete road improvements, and when the weather improved in the fall it was practically impossible to get either men or teams to finish work which had been left over from the earlier part of the summer.

The road problem is certainly a most difficult one to deal with and the experience so far gained indicates that for many years to come wet seasons must be accompanied by bad roads. Wet seasons as a rule produce good crops, and good roads are the more needed during such years owing to the extra teaming necessary to move the crop. Good roads are, however, during such years, a practical impossibility so long as they consist of the natural earth surface without any top dressing of gravel or stone to shed the water, and it would seem that our energies during such years must be devoted to making the roads passable without attempting in any way to make them "good."

The roads provided by the natural prairie surface in dry seasons leave little to be desired, and the heaviest loads can be hauled over them at that time without trouble. To make these roads passable in wet weather is a difficulty which has confronted Government and municipal organisations throughout all the prairie portions of North-Western America for many years. The concensus of opinion and experience now indicates that drainage is the main feature which must be looked to for improvement of prairie roads in wet weather, and that even with drainage such roads will be bad in such seasons.

The importance and difficulty of the road problem from a Departmental standpoint will be understood from the statement that last year, if we include the roads in small local improvement districts, we were charged with repairs and improvements on at least twenty thousand miles of road, and that in many cases our energies had to be devoted to trying to make portions of these roads passable without particular reference to the permanent character of the improvements.

A further difficulty in dealing with the road question results from the fact that as new settlements are opened up new lines of travel to market centres develop which, in many cases, change the conditions as they affect roads upon which improvements have already been made. The rapid extension of railway lines which may be looked for in the Territories in the near future will also make a great change in the direction of travel to market centres, and as a consequence many roads upon which considerable sums of money are now being spent for improvements will be little used.

In the thickly settled portions of prairie States to the south of us it has been pointed out by writers on the subject of "good roads" that the rapid railway extension which follows settlement in such districts has done away with and rendered unnecessary long lines of waggon transportation, and that with the completion of such railways the necessary roads are only those needed to afford easy communication between neighbouring farms, and between the farm and the nearest railway station.

When that condition is reached in the Territories the road problem will necessarily become a local one in the sense that local conditions as to character of traffic and proximity of materials for road improvements will largely govern the steps taken to provide good roads.

In the meantime, as has already been pointed out, the efforts of the

Department must be concentrated on such improvements as will render roads at present used passable without reference to a great extent to the permanent character of such improvements, and assuming that fact as a basis for our work it is evident that in future we should devote more attention to drainage of roads and less to grading. An earth road, if provided with good drainage, will be passable in the wettest season, although it will, of course, be unpleasant to drive over, and unsuited to movement of heavy loads. A graded road, however, which is not provided with good drainage, increases in impassability in proportion to the amount of rain which falls, and becomes a perfect bog hole in those places where the water, lying in the ditches, has had time to thoroughly soak the dump of the grade.

In the Manual of Instructions which we issue to Overseers of Local Improvement Districts, and to foremen employed in making road improvements, an effort has been made to point out the importance of drainage in connection with road work. Many overseers and foremen, however, continue the improper and useless practice of trying to make roads through swamps or low places by grading up a dump and leaving the ditches from which earth is taken for the dump full of water and without any outlet. It is thought that good work could be done in educating our overseers and foremen as to proper methods of road construction by arranging a series of lectures on the subject to be delivered at the Farmers' Institute meetings which are held at many points in the Territories under the direction of the Department of Agriculture during the summer momths. Qualified lecturers on this subject could probably be provided, and the cost of such a series of lectures would be trivial when compared with the great benefit which would accrue from an improvement in our present method of making road improvements.

During last year the sum of $35,091.32 was spent in road improvements, and in connection with this expenditure attention is again directed to the fact that our present system of expending amounts available for road improvements in small sums on several roads in a district results in a patchwork method of road improvements which is not conducive to permanent results, and to the further fact, referred to in previous Annual Reports, that it is desirable that we should adopt, as far as possible, a scheme of main roads in different portions of the Territories, and confine the expenditure each year to the improvement of these main highways until they are put in good shape. It is admitted that in certain districts the conditions of settlement and market centres do not permit, as yet, of the location of main roads which are likely to remain the main lines of travel, but there are districts where the matter of settlement and railway extension is now settled on a sufficiently permanent basis to permit of the main roads being definitely selected, and expenditure confined to the improvement of such roads.

The facts above quoted, and the information regarding road improvements given in former reports, indicate that the road problem in the Territories presents a twofold aspect. In the first place we have roads which are used in connection with the opening up of new settlements, distant in many cases many miles from railway points, and which should only be improved sufficiently to make them passable until the definite route from such settlements to market centres is finally located.

The second class of roads are those in the more thickly settled portions of the Territories, where the character of the settlement and present condition of railway extension have served to define with some degree of permanency the location of roads which may be designated as main roads to market centres which will remain such for many years to come.

On roads of the latter class there is no doubt that the improvements undertaken should, as far as possible, be of a permanent character, and it is again suggested that before commencing road work this year we should endeavour to obtain information which will enable us to locate the latter roads on our large scale sheet maps, and prepare a proper schedule of them. When that is done an effort should be made to have an inspection of these roads made by our District Engineer so that a proper report and specification may be prepared regarding the location and character of the improvements required to put these roads in as good a state as possible.

There is an additional phase of the road problem which has not, I think, been given sufficient consideration by the general public, and which may be referred to as the public character of our road improvements. It is true that in the Territories this feature is, as a general thing, viewed from a different standpoint to that obtaining in the older Provinces, but there is still a grave misconception regarding this phase of the subject in the minds of many residents of the Territories.

The feature in question may be styled "the good roads for farmers" belief. That the farmer is directly interested in and receives perhaps the greatest benefit from good roads is true, but the fact must not be lost sight of that the cities, towns and all market centres also derive a very direct benefit from the improvement of the highways leading to such centres of trade, and this fact gives the road question a national aspect which directly contradicts the very generally accepted idea that to farmers alone should be delegated the cost of improving such highways.

In the fifth annual report of the Commissioner of Highways for Ontario, published in 1900, this subject is referred to as follows:

> The indirect use of the roads by the cities arises from the fact that while the farmer uses the road to haul his produce to the market town, he goes there quite as much for the purpose of taking back with him the goods which he purchases from the merchant. If it is necessary for the farmer to drive to town, it is equally necessary for the town that the farmer should go to it. If the farmer did not go to the town it would be necessary for the merchants to put their goods into waggons and go around the country; it would be necessary for grain merchants to provide teams and waggons to haul to the station the food supply of the world. That this is not the case arises mainly from the fact that the farmer has horses and waggons for use on his farm which he can use on the roads. By collecting merchandise at central fixed points, the farmer knows where to go when he needs goods, he can get a better selection than from the itinerant merchant, and he can transact his business to better advantage. These circumstances are determined by convenience, not because the farmer needs country roads any more than does the town. If the farmer did not come to the merchant the merchant would have to go to the farmer.
>
> The town that exerts an influence over the trade in the country attracts the people from the different sections causing those of one township to travel through another, and the trend of traffic being in the same direction imposes a heavy burden on the township adjacent to the town for the maintenance of the main roads. Whereas if a county system of taxation was provided for making and maintaining the main thoroughfares the tax would be equally levied against all the users of the road. The townships now heavily taxed would be relieved of an unfair burden, while the outlying townships would pay for the use of the roads which they help to destroy. With a county system of taxation for keeping up these main arteries, justly apportioning the cost, it would not then be difficult for each township to keep up the lateral roads of township importance only. By a provincial system, a county system, and a township system, every one benefitted by the roads would be reached and made to contribute a share, while the administration, being more perfect would result in better work.
>
> Good roads at all seasons of the year facilitate trade. Easy, uninterrupted communication is the basis of commerce. Good roads are not merely the arteries of trade,

> but they furnish health and strength to the country they traverse. To all, to every citizen they are a benefit; they are used directly or indirectly by all; and they should in some way be paid for by all.
>
> Road construction is a great and expensive public work, in need of all the assistance to which it is entitled, and by a provincial grant only can the large towns and cities be reached. The principle of state aid or co-operation in this matter is recognised in most European countries. It is being adopted in the States, and Massachusetts, New Jersey, Connecticut, Rhode Island, Vermont, New York, and others in this way levy a portion of the cost upon all.
>
> The Government is then only exercising its rightful function as a part of the administrative system in providing a portion of the cost of making roads and distributing the money among the different municipalities entitled to it. This function can be performed by the Provincial Government only.

In previous Annual Reports it has been pointed out that with the extension of the local improvement organisations a considerable portion of the work of road improvements hitherto undertaken by the Government as a charge against the general revenue, should properly be delegated to the local improvement districts, but it is quite clear that for many years to come there must be a considerable contribution from Territorial revenues towards the completion of such roads to cover the cost which may be termed "public" or "national."

As is pointed out in the quotation given above, this contribution can be provided by the Territorial Government only, and the cost is a proper charge against the Territorial revenues. In fact, only in that way can the cities, towns and market or trade centres be made to bear their just proportion of the cost of improving such roads. It is true that so far there has been no disposition on the part of any of the Territorial cities, towns or villages to object to the expenditure by the Government of money in road improvements, but at the same time there exists, as already pointed out, the erroneous impression that the farmer only receives benefit from good roads, and that impression should be corrected and a correct understanding of this matter arrived at before our present local improvement organisations advance to the stage of full municipal powers, and are charged with the duty of providing for the cost of road improvements within their boundaries.

In addition to the general work of road improvement undertaken by the Department as a charge against current votes we completed last year certain improvements on the road from Edmonton to Athabasca Landing, and from Lesser Slave Lake to Peace River Landing, this work having been undertaken at the request of the Dominion Department of Public Works, who had a vote from Parliament of $5,000 for the improvement of the road from Edmonton to Peace River Landing. The amount mentioned was expended, and the improvements completed will do much to make the roads in question more suitable for the movement of the large quantity of freight moved by that route into the northern Territories each year.

RAILWAY EXTENSION.

Reference has been made in the preceding pages to the effect which railway extension may be expected to have on the road problem in the Territories. In many of the States to the south of us, and in those portions of the Territories traversed by the main line of the Canadian Pacific Railway, railway construction preceded settlement and was practically the pioneer in the development of settlement. The conditions in the

Territories have now, however, changed in a marked degree, and settlement has extended so far out of reach of existing railway lines that the matter of railway extension is at the present time the most important question requiring solution. This question is allied to our road problem because thickly settled districts, which now have to deliver their produce to existing railways by long hauls over roads that we are called upon to improve, will abandon such roads the moment they are within reach of the nearer railway facilities which will be provided by branch lines that sooner or later will form a net work throughout the Territories. At the present time we have thickly settled districts, which produce large grain crops, situated thirty and forty miles from the nearest railway station, and when the labour and hardship consequent upon haulage of grain for that distance to market is realised, the interest of the residents in the matter of road improvements and railway extension is easily understood.

The situation in this respect throughout the Saskatchewan Valley will be much relieved by the extension westward of the Canadian Northern Railway which is looked for in the near future, but in portions of Eastern Assiniboia, which at present produces the larger portion of the wheat crop of the Territories, the need of branch line railways is very acute.

Throughout the whole length of Eastern Assiniboia the main line of the Canadian Pacific Railway runs parallel to and some distance south of the Qu'Appelle River, and the thickly settled districts lying north of the river are cut off from railway communication except by long hauls, including the crossing of the Valley of the Qu'Appelle with its steep hills. This condition has necessitated an attempt on the part of the Department to provide and maintain long main roads north and south across this valley, including upwards of one hundred side hill roads into and out of the valley, and some thirty-nine bridges across the Qu'Appelle River. The construction of the projected branch line of the Canadian Pacific Railway north of and parallel to the valley, which is looked for this year, will at once relieve the residents of the country traversed by this branch line of the present long haul to the main line, and will altogether change the present trend of travel over the roads and bridges we have been striving to provide.

In South Eastern Assiniboia the necessity for further railway extension is also becoming pressing, and as the country between the main line and Soo branch of the Canadian Pacific Railway has developed in the way of settlement in a marked degree during the past year, it is evident that an extension of the Pipestone Branch of that railway through this district will become an urgent necessity within the coming year, if these settlers are to be provided with such railway facilities as will obviate a long haul for the large amount of grain that they will probably raise in the near future.

For the purpose of illustrating in a graphic manner the distribution of population and settlement in the Territories, and the necessity for railway extension to meet present needs, we prepared during the fall of the past year a map showing the resident population in every local improvement district, together with information relating to the population in villages, towns, cities and rural municipalities. This map illustrated in a very marked manner the trend and location of settlement in the Territories and the necessity for immediate railway extension to provide for the great development which had taken place in the past few years. Copies of this map were sent to the Hon. the Minister of the Interior and to the Canadian Pacific Railway Company.

DRAINAGE.

The important bearing which drainage has upon the question of road improvements has been spoken of in past Annual Reports, and is referred to particularly above.

Previous to the last session of the Legislative Assembly there was no law in the Territories dealing with this important matter, and the Department, and private owners who wished to go in for drainage of their lands, were both hampered in undertaking this necessary and important work. The Public Works Ordinance, as amended and consolidated at the last Session, contains simple and effective provisions with regard to both Government and private ditches, and under these provisions considerable work was done during the past year in locating and providing Government ditches.

The subject of drainage in some of the older Provinces of the Dominion has proved a fruitful source of trouble and litigation, and the laws passed by those Provinces relating to this matter are intricate and cumbersome. In framing the provisions of The Public Works Ordinance relating to this matter the Government had the advantage of the experience of the administration of the older laws referred to, and the added advantage that under our centralised system of government it was possible to deal with the matter on a radically different basis to that followed in these older laws, where the question is left entirely to the municipal authorities without any reference to Government control.

Under the Ontario Ditches and Watercourse Act a great work has been completed in many portions of that Province in reclaiming swamp lands and providing good drainage facilities, but that Act has probably been productive of as much litigation as any other enactment ever passed by the Legislature of the Province, and it is now admitted by the municipalities of the Province, and by the Engineers employed in completing the drainage systems under the provisions of the Act, that had the law from the first provided for something in the way of Government control and supervision of drainage works through a Drainage Commissioner, much of the ruinous litigation which has taken place might have been avoided.

The provisions of our Ordinance, as has already been stated, are simple, and the experience gained during the past year's administration of the law indicates that with some slight amendment they are well suited to present conditions in the Territories. The amendments required are to provide the necessary machinery under which the drainage of considerable areas owned by private parties, which are intersected by roads that would incidentally benefit by the construction of such drains, can be undertaken by the Government on the basis of a fair assessment of the lands benefitted for their share of the cost of such ditches or drains.

We have during the past year received two or three petitions asking the Department to undertake the completion of drainage schemes of the above character, but difficulty has arisen in dealing with such applications owing to the want of legal provisions under which the properties benefitted can be made to bear their just proportion of the cost of completing such schemes.

In the petitions referred to the signers have offered to pay a proportion of the cost of completing the ditches asked for based on the land owned, but they could not, of course, bind the owners of land who did not sign the petition, although such land would receive equal benefit with their own from the construction of the proposed ditches.

To meet this difficulty it is recommended that the present provisions of the law be amended so as to provide that if a majority of the land owners in any defined district petition to have the necessary drainage system in the district constructed by the Department, the Commissioner may order the construction of the necessary ditches and approve an assessment of all the lands benefitted for a just proportion of the cost of constructing such ditches, the Department of course bearing the proportion of the cost which should properly be charged against the roads in such district which are drained by the completion of such ditches.

An enactment on the aforementioned lines would, it is thought, be perfectly fair, and would enable us to deal with pressing cases of drainage which we are now unable to undertake.

To indicate the importance of our drainage work and the proportions to which it has grown during the past year, a schedule of ditches asked for, surveyed and under construction is appended.

SCHEDULE of Ditches and Drains for which Applications have been made.

NO.	LOCATION					DISTRICT TO BE DRAINED	LENGTH	REMARKS
	PT.	S	T	R	M			
1			54/55	25	4	Trail St. Albert to Morinville and sloughs on adjacent lands affecting road allowances.	Main drain 30,558 ft. Southern extension 2,904 ft.	Surveys and plans completed. Contract for construction let to S. J. Eccles May 22nd, 1901. Northern portion of drain for which above is contract reported completed with the exception of 3 stations and little excavation necessary to get ditch down to grade, Dec. 16th, 1901. 1,349 cubic yds. excavation reported done on southern extension of ditch on same date.
2			54/55	21/22	4	Creamery flats and surrounding flats and sloughs to be drained into Ross Creek, Fort Saskatchewan Settlement.		Surveys and plans completed. Contract let for construction to Geo. Kimball May 22nd, and cancelled when contract partly completed Aug. 31st, and contract for uncompleted portion of ditch let to Thos. Ryan. 12,790 cubic yds. earth moved and one bridge constructed by Kimball. Ryan's contract not completed and nothing on file to indicate amount of work done.
3			46/47	23	4	Huard Lake and adjacent hay lands.		Instructions for survey issued.
4		32/33/29/28	53	24	4	Flarels Lake and road allowances and lands adjacent.		Instructions for surveys issued.
5						Slough near DeWinton Station on east of C. & E. Ry.		Now partly done by private parties and C. & E. Ry. Co.
6	Bet.	15/16	54	21	4	Road Allowance.		Engineer instructed to report on location and character of ditch required.
7		12/13	54	21	4	Road Allowance.		Engineer instructed to report on location and character of ditch required.

SCHEDULE of Ditches and Drains for which Applications have been made.—*Continued.*

NO.	LOCATION					DISTRICT TO BE DRAINED	LENGTH	REMARKS
	PT.	S	T	R	M			
8		22/27	54	21	4	Road allowance.		Engineer instructed to report on location and character of ditch required.
9			38	27	4	Flat about 2½ miles N.W. of Red Deer and road allowances.		Engineer instructed to complete survey and prepare estimate.
10						Battleford-Saskatoon trail, drain from culvert east of Eight Mile Creek to the Saskatchewan.		Drain cut 1897.
12	N.	31	20	1	5	Slough and road allowance.		Surveys not made.
13	N.E.	2	25	3	2	Hay swamp.		Surveys not made.
14		11	19	11	2	Slough.		Surveys not made.
15		18/19/20	52	24	4	Sloughs on road allowances.		Engineer instructed to examine and if ditch practicable to make survey.
16		29	19	1	2	Drain from N.E. corner Sec. 29 to Little Cut Arm Creek.		Surveys not made.
17		20/21	55	24	4	Road allowance.		Surveys not made.
18		20/21	52	23	4	Road allowance.	325 ft.	Work completed 1901. Original estimate was for ditch 695 ft. Overseer reports about 2,100 ft. of ditch dug of average depth of 4 ft.
19		21/28	52	23	4	" "	150 ft.	
20		3/4	52	23	4	" "	100 ft.	
21		10	52	23	4	" "	120 ft.	
22			55	23	4	Road allowance and adjacent low lands.		Engineer instructed to make survey May 28th, 1901.
23		17/18/19/20	47	27	2	Portion of road allowance flooded by lake.	2,244 ft.	Survey made and contract let to W. C. McKay. Work nearly completed.

		14th Base Line.				Road, Edmonton to Stony Plain.		Engineer instructed to examine and report on scheme.
25		28/33/34	53	22	4	Road allowance to be drained into Point-aux-pins Creek.	3,762 ft.	Surveys and plan completed.
26		22/23	52	1	5	Collock's Lake and road allowance.		Instructions issued for surveys.
27		3	53	27	4	Lake at post office.		Road diverted in preference to construction of ditch.
28		18	46	27	2	Marshes on road allowances and adjacent lands.		Survey made, but plans not completed.
29			45/46	17	3	Approaches to bridge over Jackfish Creek at Hammand's Crossing by removal of obstructions in creek and clearing out of channel.		Survey made and expenditure of $500.00 authorised, and work partly done.
30		20/29/32	40	26	4	Swamp on road, Buffalo Lake to Lacombe.	15,100 ft.	Survey and plan completed.
31		14/15	39	26	4	Road allowance and slough on same.	1,460 ft.	Survey and plan completed and negotiations for right of way entered into.
32			51	25	4	Swamps on road allowances to drain into Whitemud Creek.		Instructions for surveys issued.
33		30	31	1	5	Slough on road allowance and adjacent lands.		Survey not made.
34		32	51	24	4	Road allowance.		Instructions for survey issued.
35		30/31	53	23	4	Slough on road allowance.		Instructions for survey issued.
36		21/22/21/28	53	24	4	Road allowances.		Instructions for survey issued.
37		17/18	53	24	4	Road allowance and slough on same.		Instructions for survey issued.
38		20/21/28/29	19	1	2	Sloughs on road allowance.	2,100 ft.	Survey made and ditch constructed.
39		7/12/13/18	16	19/20	2	Sloughs on road allowance.		Survey not made.
40		10/11	47	27	4	Slough on road allowance.		Survey made and plan completed.

SCHEDULE of Ditches and Drains for which Applications have been made.—*Continued.*

NO.	LOCATION					DISTRICT TO BE DRAINED	LENGTH	REMARKS
	PT.	S	T	R	M			
41	S.E.	28	2	27	4	Slough on road allowance.	540 ft.	Ditch completed.
42		16/17	54	25	4	Slough on road allowance.		Survey not made.
43	S.W.	31	51	23	4	Swamps and land adjacent.		Survey not made.
44		14/23	20	11	2	Slough on road allowance.		Construction of ditch on road allowance by L.I. District authorised.
45			50	24	4	Road allowances and sloughs on same.		Engineer instructed to make survey.
46	N. Bdy. "	29/30 25/26/27	52 52	23 24	4 4	Country adjacent to blind line.		Instructions for survey issued.
47	Bet. N. of Bet.	25/26 34 35/36	54	24	4	Swamp.		Instructions for survey issued.
48		5/32	53/52	23	4	Slough on road allowance.	528 ft.	Survey made and ditch partly constructed.
49		4/5	53	23	4	Lake on road allowance.		Survey made and ditch partly constructed.
50		22/27	35	1	5	Road allowance.		
51	N.W.	10	35	1	5	Slough on road allowance.		
52			53	24/25	4	Long Lake, Horse Lake, Juneau Lake and adjacent lands into Rat Creek.		
53			56	25	4	Sloughs, lakes, road allowances and adjacent lands.		Survey not made.
54		19	33	4	3	Marsh near Dundurn into Beaver	2,800 ft.	Survey made and ditch completed.

56		24/25	47	27	2	Swamp and adjacent lands.		Instructions for survey issued.
57		6	52	24	4	Slough on road allowance.	604 ft.	Survey made and plan completed.
58			52/53	25	4	Along 14th Base Line road allowance.	13,530 ft.	Surveys made, plans completed and ditch constructed.
59			35/36/37/38	27/28	4	Road allowances and adjoining lands.		Instructions for survey issued.
60		24/25	47	27	2	Cleaning and straightening of channels of Red Deer and McFarlane Creeks.		Improvements made to channel of Red Deer Creek have been made by removal of obstructions, etc.
61	W. of	30	53	22	4	Lake on road allowance.	960 ft.	Survey made and plan completed.
62		7/18	35	1	5	Slough on road allowance and approaches to Eagle Creek Bridge.		Instructions for survey issued.
63		22/23	41	25	4	Road allowance and adjacent lands.		Instructions for survey issued.

Referring to the ditches shown by foregoing schedule as having been constructed during the past season, the following remarks may be of interest.

Drain No. 1.—This ditch is located in the district north of St. Albert and is designed to drain the main roads between that point and Morinville. The ditch is about ten miles long and throughout the greater portion of its length is located on the road allowances. At one or two points on the north and south sections of the ditch slight deviations had to be made from the road allowances to avoid deep cuts. At the south end the ditch is carried across country in a south-westerly direction for about two and a half miles to an outlet in Carrot Creek through which stream the water is delivered to the Sturgeon River.

The roads in the country through which this ditch runs have in many places been practically impassable during the past two wet seasons, and much of the land adjoining the road allowances along which the ditch is located has been under water. Work on the construction of the ditch was commenced in the fall of 1900, but poor progress was made that year, and a new contract for the completion of the ditch was let last spring. The contractor met with much difficulty owing to the unusually wet season, but had practically completed the main ditch at the close of the season, and the district traversed by the ditch showed a marked improvement owing to the large quantity of surface water which had been run off through the ditch before it froze up. On the main ditch some cleaning out and deepening in a few places will be required in the spring to make the work complete, but the ditch is in shape to take care of the spring freshet in the district traversed. An extension to the south of this ditch is asked for to drain a portion of the road allowance and adjacent land near St. Albert, and this extension will probably have to be constructed to make the system complete.

This drain is one of those referred to above which benefit lands adjacent to the road allowances, although these lands are not assessed for any portion of the cost of the ditch as compensation for such benefit. In several instances sections adjoining this ditch which before its construction were entirely useless owing to swamps and surface water, will now be drained and rendered fit for cultivation, and it seems only reasonable that such lands should bear a just proportion of the cost of the ditch which has so improved their value.

In constructing ditch No. 1 some 24,391 cubic yards of material have been moved, and the expenditure on the ditch to date amounts to $4,875.00.

Drain No. 2.—The main road into Fort Saskatchewan from the large settlements lying east of that point runs along the correction line, but during the wet seasons of the past two years this road has been closed to travel owing to water in the swamps and low lying country traversed by this road. A careful inspection of the district indicated that the only way in which a good road could be provided along the correction line at all seasons was by constructing a large drain to divert the water from these swamps and low lying areas into Ross Creek, and thence into the Saskatchewan River. The ditch, as finally located, comprises a length of some four miles, the greater part of which is located along the road allowance with a diversion across sections at the western end to carry the ditch to an outlet in Ross Creek.

A contract for the completion of this ditch was let in the early part of the year, but the contractor, owing to wet weather, and trouble in obtaining teams, made very slow progress with the completion of the work, and in the latter part of the season his contract was cancelled and a new contract let. The second contractor also failed to complete the work, and this ditch will require to be put in hand the first thing in the spring so as to reach completion before the wet season sets in.

It is proposed to complete this ditch with the steam ditching machine referred to more fully further on, as it seems impossible to get the work pushed with any degree of rapidity by local contractors.

The first contractor moved some 12,790 cubic yards of material from the ditch up to the time of the cancellation of his contract, and the expenditure on the work so far amounts to $1,549.00. The cost of completing this ditch will probably be about $1,500.00.

Drain No. 4.—This drain is intended to drain a lake known as Favel's Lake, which obstructs the road allowances in Township 53, Range 24, west of the 4th Meridian, and incidentally will drain several swamps which flood land in that vicinity. Preliminary surveys for this drain, which will be of considerable length, have been made, but we are not yet in a position to issue final plans or estimate the probable cost. This drain is also one the cost of which should be divided between the owners of lands affected and the Department, and although certain of the land owners have signified their willingness to contribute towards the cost, we cannot under existing provisions of the law assess the lands of non-residents or those residents who will not agree to contribute.

Drain No. 9.—Immediately north of the Town of Red Deer, on the north side of the Red Deer River, there are several large swamps which flood the road allowances and during the past two years have prevented travel. Drain No. 9 has been located with the object of draining these swamps. Considerable difficulty has, however, been experienced in locating this ditch owing to the extreme fall from the swamps which are located on the top of the bank of the valley of the Red Deer River, and it seems probable that if the construction of the ditch is undertaken we will have to put in a system of vitrified pipe to carry the water in that portion of the drain where the fall is so great that if the water is allowed to flow in an open ditch serious erosion of the banks will take place.

This ditch is urgently needed. It will cost a considerable sum of money, and the properties upon which these swamps are located should certainly be made to bear a proportion of the cost based upon the added value which would accrue to such lands from the drainage of the swamps.

Drains Nos. 18, 19, 20 and 21.—These ditches were located with the object of draining road allowances in Township 52, Range 23, west of the 4th Meridian. It was originally understood that a drain about 690 feet long would do the required work. The construction of the ditch was undertaken by the Local Improvement District, but it was found necessasy to construct about 2,100 feet of ditch of an average depth of four feet before the necessary drainage could be provided. This ditch affords an illustration of what can be done by small local improvement districts, under proper direction, in the way of draining roads which were previously impassable. The ditch in this case was all located on the road allowances.

Drain No. 23—This drain, which is about half a mile in length, was located for the purpose of improving the road allowances in Township 47, Range 27, west of the 2nd Meridian. The contract for the completion of the ditch was let in the early part of the season, but the work was very much delayed by the wet weather, and a small amount of work will be required to complete the ditch and put it in satisfactory shape. It is evident, however, that the water which has flooded these road allowances can be run off through this ditch, and that it will greatly improve conditions in that township.

Drain No. 29.—The surplus water from Jackfish Lake, which is situated in the vicinity of Townships 45 and 46, Range 17, west of the 3rd Meridian, is delivered into the South Saskatchewan River through Jackfish Creek. During the dry seasons which preceded the year 1900 this creek became very much obstructed by a growth of grass and brush. The two wet years following 1899 raised the water in this lake so much that some of the settlers living along its shores were forced to move, and on the road allowances crossing Jackfish Creek the water was backed up to such an extent that it was almost impossible to attempt to bridge this creek with a structure of reasonable length. It was, therefore, decided to endeavour to improve the channel of the creek so as to provide for the run off of this surplus water. Preliminary work in this connection was undertaken last season, but is not yet completed.

Drain No. 30.—Immediately east of the Village of Lacombe, in Township 40, Range 26, west of the 4th Meridian, there is a large swamp running north and south which obstructs all the road allowances in that vicinity, and particularly the main road from Lacombe to Buffalo Lake. This swamp and the adjacent low lying lands cover a large area, and the only possibility of draining the water off this area is to construct a ditch to the north with an outlet into Wolf Creek. During the two past wet seasons this district of country has been very badly flooded and serious inconvenience has been caused not only to travel but to the owners of lands adjacent to these swamps.

We, therefore, completed last season the survey for a ditch system to drain this area. The main portion of this ditch extends for about three miles and it would be necessary, in connection with the completion of the work, to straighten and deepen a portion of the channel of Wolf Creek.

The completion of this drainage scheme is urgently needed, but this is one more additional case where, under existing conditions of the law, it is not possible to charge against the lands which would be benefitted by the completion of the work their just proportion of the cost of the same.

Drain No. 38.—This ditch was located for the purpose of improving the road allowances between Sections 20/21 and 28/29, Township 19, Range 1, west of the 2nd Meridian. The ditch is about 2,100 feet in length, and its construction was completed last season by the Overseer of the Township after proper survey had been made by the District Engineer.

Drain No. 52.—The main road from Edmonton to St. Albert passes through a low district of country in Township 53, Range 24, west of the 4th Meridian, and during the two past wet seasons it has been an impossibility to get this road in anything like a fit condition for the large amount of travel between these two points, owing to the flooding of the district traversed by the road resulting from the overflow from Long Lake, Horse Lake and Juneau Lake which lie to the west. The owners of lands adjacent to these lakes and in that immediate vicinity have petitioned the Department to construct a ditch which will drain the district in question into Rat Creek. The preliminary surveys for this ditch have been made. They indicate that the scheme is quite feasible but of somewhat large proportions. However, the owners of the properties affected having signified their willingness to undertake a fair proportion of the cost of construction of the ditch, provision for the completion of the drain, which includes the straightening and deepening of a considerable portion of the channel of Rat Creek, will probably be made in the spring.

This is one of the ditches upon which it is proposed to use the steam ditching machine, as it is quite certain that it will do excellent work, and complete this ditch at a much lower cost than could be expected if the work was undertaken with the use of teams.

Drain No. 54—In the Dundurn District, Township 33, Range 4, west of the 3rd Meridian, there are two large lakes and adjacent marshes which seriously interfere with travel in that district, and which, during wet seasons, fill up to such an extent as to flood lands which in dry years have been used by settlers for hay purposes. A result of the flooding during the past two years has been to prevent large areas of hay being cut, and as this district is largely devoted to ranching, certain of the residents have had to dispose of their cattle owing to inability to obtain hay. The question of draining the lakes and marshes has, therefore, been urged during the past two years, and we had a preliminary survey made for this ditch in the fall of 1900. Last year the final surveys were completed, and an arrangement entered into with the adjacent land owners by which they undertook the construction of one third of the ditch, the remaining two-thirds being paid for by the Department.

This work was very satisfactorily carried out by the settlers and is sure to result in great benefit to the district, not only by improving the roads but in rendering available hay lands which during the past two years have been flooded.

Drain No. 58.—The main road from Edmonton west to the Stony Plains settlement follows the 14th Base Line. Large expenditures have been made on this road in the effort to provide a suitable road bed, but as a considerable portion of the road passes over a large muskeg, and as previous attempts have been based on the construction of the road without drainage, poor results have been obtained. Last spring it was decided to put in a system of drainage which would thoroughly drain this muskeg and thus permit of a proper road being made. The drain, which is about 13,500 feet in length, is located along the road allowance, and is designed to deliver all the water from this large muskeg into Gooderichs' Creek. The construction of this ditch was a serious undertaking as the portion of it located in the muskeg had all to be removed by manual labour. We, however, succeeded in getting the ditch completed in the fall, and there seems little doubt that it will enable us to provide a good road along the Base Line during any season.

Drain No. 60.—In the Prince Albert district the Red Deer Creek, which heads near the north branch and flows east and north, finally entering into the south branch of the Saskatchewan River, flows in a shallow channel, and during wet seasons large areas of land adjacent to the creek become flooded, and seriously obstruct travel. We have a number of bridges on this creek, but during the wet seasons of the past two years it has been almost impossible to get to or from these bridges at several points.

An examination was made in 1900 to determine whether conditions would be improved by the removal of obstructions from the channel of this creek, and this work was completed last season. From the reports received it seems quite certain that the flow in the creek has been very materially improved, and that the probability is that the run off will now be more rapid, and that areas adjacent to the creek will not be flooded.

STEAM DITCHING MACHINES.

In undertaking the construction of ditches we have been met with the same difficulty regarding contracts that has been referred to in dealing with our bridge work. In the portion of the Territories where we have been constructing ditches there are very few, if any, men who have had experience in this class of work, or have the necessary outfits wherewith to complete such work, and as a consequence we have had trouble in getting this work properly completed under contract at reasonable prices. To overcome this difficulty the question of obtaining a steam ditching machine for use in constructing our ditches was enquired into, and a machine of this kind has been ordered from Messrs. Beatty & Sons, of Welland, Ontario, who manufacture a ditching machine which has been used with great success in constructing ditches in Western Ontario. The machine which we are obtaining will move about 400 yards of earth a day, can be operated in any kind of weather, and in any ditch having a bottom width of four feet and not more than 15 feet deep. If the results expected are obtained with this machine, we should be able to move the earth from ditches for about one half what it is costing to do this work with horses, and with the added advantage that wet weather or soft ground will not delay operations. As already intimated, it is proposed to put the steam ditching machine which we are obtaining at work completing Drain No. 2, and after work is finished there to move it to some of the other larger ditches which may be undertaken. This steam ditching machine will cost, ready for work, about $3,000.00, and if we obtain anything like the results that are expected, and any number of the larger ditches asked for are put in hand, it will probably be found necessary to obtain a second machine of this character.

FERRIES.

The number of ferries operated last year shows an increase over the preceding year owing to the establishment of a new ferry on the North Saskatchewan River between Sections 29 and 30, Township 42, Range 6, west of the 3rd Meridian, immediately west of Rosthern. This ferry was put in to provide a crossing for the large Doukhobor colony west of the river, the residents of which, before the establishment of the ferry, had to go many miles around by the crossing at Carlton to reach either Duck Lake or Carlton. This and the completion of the ferry over the Red Deer River at Steerford referred to in the last Annual Report, were the only new ferries provided during the year, and, with those operated during the previous year, make a total of 18 ferries operated by the Department as shown by the accompanying schedule ;

Government Ferries.

Athabasca River, at Edmonton-Peace River Road Crossing.
Pembina River, at Edmonton-Peace River Road Crossing.
Bow River, at Blackfoot Crossing.
North Saskatchewan River, at Battleford.
do at Carlton.
do at Fort Saskatchewan.
do west of Rosthern, Tp. 42-6-3.
do at Victoria.
do at Wingard.
Red Deer River, at Steerford.
do at Tindastoll.
South Saskatchewan River, at Adams' Crossing.
do at Batoche.
do at Fish Creek.
do at Isbister's Crossing.
do at Mackenzie's Crossing.
do at Medicine Hat.
do at Saskatoon.

Private Ferries.

Lesser Slave Lake, at Narrows.
North Saskatchewan River, at Paradis' Crossing.
do at St. Paul des Metis.

In addition to the Government ferries shown above we arranged during the year to operate, in conjunction with the Indian Department, a ferry on the North Saskatchewan River at Saddle Lake. We provided for use there a cable which had been used at Victoria before the new cable at that point was put up and some blocks and outfit belonging to the old ferry at Fort Pitt, and the Indian Department undertook to provide the scow and operate the ferry.

All the Government ferries, except that at Battleford, are the usual cable ferries, and were, with the exception of those at Medicine Hat and Fort Saskatchewan, operated under the system which has been in force for a couple of years, by which we pay the ferryman a bonus of $10.00 a month, and authorise him to collect in addition a low schedule of tolls for ferriage. This system practically makes our ferries public works, and provides crossings over streams that are unfordable and which we are unable at present to bridge, at such a low rate of tolls as not to prove any burden to the settlers requiring to use them.

At Medicine Hat the ferry is practically within the limits of the town, but the amount of ferriage is limited, and a high schedule of tolls has to be charged. An arrangement was made with the town in the early part of the year that a bonus of $125.00 would be paid towards the operation of the ferry during the year, and that at the end of the season the town would take over the ferry and operate it for the future.

At Fort Saskatchewan the ferry is operated by the Village, and, as a large amount of ferriage is done at that point, a low schedule of tolls produces sufficient revenue to pay expenses without the payment of any bonus.

The steam ferry at Battleford was operated last season under a contract let to Messrs. Nolin and Howell. The ferry gave very good satisfaction throughout the season, but considerable trouble was experienced in the latter part of the season owing to extreme low water. At present the amount of ferriage at Battleford is limited, and the tolls collected even under a somewhat high schedule are only sufficient to pay a small proportion of the cost of operating this ferry. As a consequence a large bonus has to be paid to keep this ferry running, but a crossing at that point is an absolute necessity, and the probability is that the early construction of the Canadian Northern Railway through the Saskatchewan Valley, and the rapid settlement which is sure to follow such railway extension will materially increase the ferriage at this point and enable the bonus for the operation of the ferry to be reduced.

At Tindastoll the ferry, as has already been mentioned, was carried away during the floods of the early spring, and for the remainder of the season we were only able to operate a small boat at that point to cross passengers without their teams. The construction of the new bridge at that point will do away with the necessity for a ferry which from the time of its establishment has been a considerable source of trouble and annoyance both to the Department and the public.

The rapid extension of settlement which is taking place in Saskatchewan, and the location of a considerable number of ranchers on the north side of the South Saskatchewan River in Western Assiniboia, have resulted in the receipt of applications for the establishment of several new ferries, and it is probable that two or three of these ferries will have to be established during the coming summer.

FIREGUARDS.

The unusually wet seasons of the past two years produced a luxuriant growth of grass and weeds, which rendered it certain that if prairie fires occurred they would be fierce and hard to control, and unfortunately that expectation was realised last fall, and some of the most extended and disastrous fires experienced during many years occurred in Western Assiniboia and in the Calgary district of Alberta.

The fall of last year was, as already noted, very open and dry, and that condition added to the danger from, and impossibility of controlling, fires that did occur.

North of Calgary and west of the Calgary & Edmonton Railway the whole country was burned over by a fire which started from the railway line near Airdrie Station. That fire not only destroyed the feed on a large part of the Nose Creek and Beaver Dam Creek ranges, but also consumed many thousand tons of hay, and the houses and buildings of two settlers.

East of Calgary, along the main line of the Canadian Pacific Railway as far east as Medicine Hat large areas of range country were burnt over and much hay destroyed.

South-east of Calgary and south of the Bow River the most disastrous fire of many years occurred. This fire started near the Bow River and, extending to the south, over ran a large area of country lying east of the Little Bow River, consuming not only the grass needed for winter feed, but many thousand tons of hay and several hundred cattle and horses.

East of Medicine Hat several fires occurred which over ran large areas of grazing land on the Cypress Hills range.

In the eastern and northern portions of the Territories we had a fortunate immunity from fires, but in those districts, owing to close settlement and large areas of cultivated land, it is of course possible to more readily check and control fires than is possible in the open range country.

The Department is doing everything possible to provide a thorough system of fireguards throughout the Territories, and in pursuance of that policy we ploughed or backset 950 miles of fireguard last year, and in addition the small local improvement districts provided some 900 miles of guard. Our efforts, however, have been practically nullified in certain districts by the failure of the railway companies to provide a proper system of fireguards along their lines to prevent the spread of the many fires which are started by their locomotives. This question has been dealt with in both of the last two Annual Reports, but it has now become so important and pressing as to require immediate action of some kind.

The railway companies naturally deny the claim that a large number of prairie fires are started by their locomotives, but that such is the case is well known to residents in the vicinity of the railway lines, and to everybody who has given the matter any consideration. That fires should be started in this way is only reasonable when it is noted that the guards, if any, which are put in by the companies, are only a short distance from the track, and that in an open country subjected, like the greater portion of the Territories, to high winds, sparks from locomotives are sure to be carried outside such guards and start fires which spread until they get entirely beyond control. Unfortunately there is at present no legal provision compelling the railway companies to provide and maintain a proper system of fireguards, and unless such a law is passed, or public opinion becomes strong enough, the companies are not likely to move in this important matter. In last year's report attention was directed to the correspondence which had passed between the Canadian Pacific Railway Company and the Department regarding a proper system of fireguards, and to the failure in the effort to make any satisfactory arrangement. This matter has lately again been taken up with the company, and the prospects are better for completing an arrangement whereby a proper system of guards may be provided.

The larger portion of the fireguards provided by the Department last year are located in Western Assiniboia and Southern Alberta, and they have been designed to provide as far as possible a complete network or system to protect the more valuable grazing areas.

In the Dundurn district in North-Eastern Assiniboia we reploughed the long fireguard put in the year before last, and at other points in Eastern Assiniboia we provided several short guards that were needed.

It will be noted from the statement of the long mileage of fireguards provided by the small local improvement districts that the residents are alive to the necessity of providing as far as possible the necessary protection from the great menace to successful operations which prairie fires afford.

PROVIDING WATER SUPPLY.

Before discussing the work of the Department last year in attempting to improve the water supply in certain portions of the Territories, I quote from the reports of 1898 and 1899 the information there given regarding the system we are following in endeavouring to deal with this important matter :

"First.—We provide testing augers which will bore from depths of eighty to one hundred feet, for use by farmers in endeavouring to locate a water supply on their farms, which can subsequently be developed by digging.

"Second.—We create storage reservoirs upon streams or upon small water courses, which become dry during summer, so as to store the melting snow or spring rains flowing through these channels until it is needed later in the season.

"Third.—We use deep well drilling machines to provide public wells in districts where the first and second methods fail or are not applicable."

Twenty testing augers were operated by the Department last year as shown by the accompanying schedule.

SCHEDULE of Test Augers in Operation, 1901.

NO.	WHERE OPERATED.	IN CHARGE OF	ADDRESS
1	Whitewood	W. A. Lamont	Whitewood.
2	Whitewood	W. A. Lamont	Whitewood.
3	Cannington	W. Ramage	Wawota.
4	Cannington	G. D. Dicken	Cannington Manor.
5	Wolseley	Robert Whitehead	Pheasant Forks.
6	Moosomin	Robert Vance	Moosomin.
7	Moosomin	W. P. Blyth John A. Brown	Wapella. Spy Hill.
8	Souris	G. H. Knowling	Alameda.
9	Souris	G. H. Knowling	Alameda.
10	Mitchell	Thomas Copland	Saskatoon.
11	Grenfell	D. D. McDonald	Grenfell.
12	North Regina	Department Public Works	Regina.
13	Yorkton	John F. Reid	Yorkton.
14	South Qu'Appelle	James McNaughton	Qu'Appelle Station.
15	North Qu'Appelle	S. Brodie	Fort Qu'Appelle.
16	Wolseley	W. P. Osler	Wolseley.
17	North Qu'Appelle	W. M. MacKenzie	Touchwood Hills.
18	Grenfell	Alex. Campbell	Tiree.
19	South Qu'Appelle	H. McGowan	Weyburn.
20	South Regina	J. Quinn	Rouleau.

The returns of the tests made with the above augers indicate that in many districts they proved of value in locating a water supply, but in other districts stones were encountered at short distances from the surface which prevented the completion of the tests, or if tests were completed they only served to emphasise the fact that water cannot be obtained at a reasonable depth, and that only by putting down deep public wells can a supply of water be obtained. These test augers serve a useful purpose in many districts, but they sometimes lead to very disappointing results. The augers used are only from two to four inches in diameter, and as there is no attached appliance by which the volume of the supply of water which may be located can be determined, it frequently happens that after digging to develop a supply which the auger has indicated as existing, the settler finds that the supply is insufficient for his wants, and his labour in digging the well is lost. As was indicated in last year's report, it is thought that better results would be obtained by using large augers, say from 12 to 14 inches in diameter. It would then be possible to guage with some degree of accuracy the volume of any water supply located, with the further advantage that a twelve or fourteen inch hole can be used as a well without any further enlargement if water is located. These large augers would, however, require to be fitted with a power attachment, as they could not be worked by hand, and a foreman to operate them would have to be provided, as they would require more intelligent handling than could be expected from the average settler. Several of these larger augers are being operated by private individuals in different parts of the Territories in making tests for settlers, and in the Rouleau district last year we employed one under contract in making tests, and located several good wells by that means.

The second method above referred to, of providing a water supply by storing the melting snow and spring floods in reservoirs created by the erection of dams on the drainage channels, has in view the providing of water for stock watering and washing, and not for domestic use, although in many cases the water in these reservoirs is used during the dry seasons for household purposes in spite of the fact that it is quite unsuited for such use.

The number of dams which we now have, and the difficulty of keeping them in repair, has already been referred to. Dealing with the question of the water supply provided in this way I desire to again call attention to certain points mentioned in previous annual reports as follows:

"Except in three or four cases, when designing and constructing this large number of earth dams no provision whatever was made for a sluice or waste pipe or passage through which the reservoir might be annually flushed out, and as a consequence the water in many of the reservoirs has become so foul and impure as to be utterly unfit for use in any way. In the winter the cattle are watered from holes cut out in the ice on the reservoirs and by spring the portions of the reservoirs in the vicinity of these watering places resemble a barnyard. This accumulation of manure and impurities sinks to the bottom of the reservoir when the ice melts and is added to the droppings of the cattle and horses which are driven to the reservoir to water during the summer. These impurities, added to the natural impurities which result from the artificial storage of water in shallow reservoirs have, as already stated, rendered the water in many of the reservoirs totally unfit for use even for stock watering, but the prospect of getting the settlers in the vicinity of these reservoirs to realise this condition of affairs and to cease using the water seems very remote. However, one cannot blame them for this indifference to danger when it is remembered that in many localities the water contained in these reservoirs is all they have, at least for stock watering, and it is either a case of using this water or getting rid of their stock. Many of them also think that if the water is not actually used for domestic purposes there is little danger of disease through allowing the cattle to drink it. This is, of course, true except with reference to the milch cows, as it is recognised that one of the most fruitful sources for the dissemination of disease germs is through the medium of impure milk.

" I am of opinion that the high winds which sweep across the prairies both in summer and winter perform a prominent part in the scavenging of settled districts and they, added to extreme winter frosts, probably do much towards counteracting the failure to flush out the reservoirs. However, without in any way desiring to create unnecessary alarm, I would direct attention to the great danger of a serious outbreak of typhoid or other forms of disease in Eastern Assiniboia directly traceable to the use of the impure water in these reservoirs, and would urge that, to meet the present emergency, and until we can get the larger dams with proper sluicing appliances constructed, the more important of the larger earth dams be provided with sluice or waste pipes during the season of 1899 and thoroughly flushed out in the fall. It is probable that we may be able to provide vitrified clay pipe, or some form of steel rivetted pipe, or solid iron pipe, which would be suitable for these sluice or waste pipes at a reasonable cost, but if this class of material proves too expensive we must provide some cheaper form of structure to serve the same end. Having put in the sluice ways it is intended to put the dam and reservoir in charge of the overseer of the local improvement district within which they are situated, and to instruct him to thoroughly sluice out the reservoir once a year. It will probably also be necessary in some instances to endeavour to prevent further pollution of the water in the reservoirs by fencing them in, and by making provision that cattle shall be watered at a point below the dam where water can be drawn off by a syphon or pump appliance. In this connection it would also be well that we should consider the question of planting trees along the edge of such reservoirs as may be fenced so as to ensure the collection of snow, and also counteract as far as possible the evaporating influence of the hot summer winds. If trees can be successfully grown they would, of course, add much to the appearance of the country in addition to assisting to accumulate and conserve a water supply.

" A large sum of money has been spent in endeavouring to improve the water supply by the second method above referred to, and at the present time we have some three hundred dams in existence including structures which cost only a few dollars and others which cost large sums (the Regina dam has so far cost about $9,000, and others from $1,500 to $3,500). There is no question that the water held in the reservoirs created by these dams has proved of the greatest value in some districts, particularly for stock watering purposes, but this method of correcting nature's shortcomings is attended with several drawbacks. The dams in a large majority of cases are mere earth embankments unprovided with proper protection against damage by the water and as a consequence they are hard to maintain, and if destroyed by the spring freshets cannot of course be rebuilt in time to conserve that season's flow of water in the channel on which they are located.

" There is also the more serious drawback, dealt with in last year's report, that the large majority of these dams are unprovided with any means of flushing out the reservoir and as a consequence the accumulation of impurities during many seasons' use offers a serious menace to public health. The effort which we are making to meet this drawback by providing low level sluiceways in the more important dams has already been referred to."

The points referred to above are certainly deserving of careful consideration, particularly in view of the probability that the wet seasons which we have had during the past two years are certain to be followed in the near future by dry years, when the possibility of the outbreak of an epidemic of disease resulting from the use of the water in these reservoirs for domestic purposes will require serious consideration.

As bearing upon this question I would recommend that the provisions of the present Ordinance regarding the pollution of streams be amended so as to make the law more stringent with regard to deposit of any improper materials on the banks of, or in any stream or drainage channel. At present it is a common custom for settlers to erect their stables in the banks of streams or ravines running through their farms, and to deposit manure in such streams or ravines. This should, of course, be stopped, and every possible precaution taken to prevent any pollution of the scant surface water supply which now exists in many districts.

In endeavouring to provide the public wells referred to under the third system outlined above, we employed eight deep well boring machines last year, the two new machines the purchase of which was recommended in the last Annual Report, having been obtained in the early part of the season. Six of our machines are of the " Austin " make, and are only suitable for drilling to a depth of three hundred feet. These machines were put in a thorough state of repair and provided with a power auger attachment before going to work in the spring, and fairly satisfactory results were obtained with them during the season. We have now, however, decided to abandon the cable method of drilling with these machines, and to fit them with a pole outfit. Last year we had two of these machines operated with that equipment, and the experience gained indicates that better results can be obtained with poles than with a cable.

The two new machines purchased during the year are known as the "Ohio" machine, and are manufactured at Tiffin, Ohio, U.S.A. They are designed to drill to depths of from six to seven hundred feet, and proved very satisfactory in their work last season. These machines were purchased to enable us to extend tests which had been made with the " Austin" machines to a depth of three hundred feet without obtaining water. With the new machines we obtained water at depths varying from three hundred and fifty to four hundred and fifty feet in districts where all previous efforts had failed to develop a water supply.

Thirty-six public wells were obtained last year, their location and depth being given in the accompanying schedule, which also shows the location of the forty-seven wells previously completed.

SCHEDULE of Public Wells.

LOCATION						YEAR DRILLED	REMARKS.
——	¼S	S	T	R	M		
Maple Creek.....		15	11	26	3	1897&1899	Depth 260 ft., water good, pump and house.
		24 19	18	17	2	1898	Depth 146 ft., water very good, pump and house.
	N E S E	33 4	19 20	15	2	1898	Depth 131 ft., water very good, pump and house.
		15 22	20	14	2	1898	Depth 126 ft., water good, pump and house.
		20 29	20	13	2	1898	Depth 124 ft., water good, pump and house.
		10 11	19	10	2	1900	Depth 264 ft., water very good, pump and house.
		2 3	19	10	2	1900	Depth 160 ft., water good, pump and house.
		2 11	19	2	2	1898	Depth 65 ft., water first class, pump and house.
		4 9	19	1	2	1898	Depth 71 ft., water good, pump and house.
		6 7	19	1	2	1898	Depth 49 ft., water good, pump and house.
		28 29	14	2	2	1898	Depth 83 ft., water good, pump and house.
		13 14	12	1	2	1898	Depth 57 ft., water first class, pump and house.
	S E	23	40	4	3	1898	Depth 87 ft., water good, pump and house.
		33 34	42	5	3	1898	Depth 98 ft., water good, pump and house.
	N W N E	5 6	44	4	3	1898	Depth 117 ft., water good but hard, pump and house.
		33 4	43 44	2	3	1898	Depth 94 ft., water good, pump and house.
Industrial School		4	44	2	3	1898	Depth 93 ft., water good, pump and house.
" "		4	44	2	3	1898	Depth 110 ft., water good, pump and house.
		10 15	44	28	2	1898	Depth 63 ft., water good but hard, pump and house.
		12 13	44	28	2	1898	Depth 170 ft., water good, little supply, pump and house.
		2 3	45a	27	2	1898	Depth 108 ft., water good, pump and house.
		33 4	44 45*a*	26	2	1898	Depth 88 ft., water good, pump and house.
		19 30	44	26	2	1898	Depth 95 ft., water good, pump and house.
		35	42	3	3	1898	Depth 75 ft., water good, pump and house.
	S E N E	4 33	43a 42	4	3	1899	Depth 51 ft., water good, pump and house.
	N W SW	36 1	43 42	4	3	1899	Depth 86 ft., water slightly iron, pump and house.
	SW N W	5 32	41 40	4	3	1899	Depth 185 ft., water good, pump and house.
	S E N E	30 19	47	22	2	1900	Depth 116 ft., water good, pump and house.
	N E NW	21 22	45	22	2	1900	Depth 73 ft., water good, pump and house.
	NW SW	9 16	45	21	2	1900	Depth 90 ft., water good, pump and house.
	SW NW	12 1	45	21	2	1900	Depth 340 ft., water good, pump and house.

SCHEDULE of Public Wells.—*Continued.*

LOCATION						YEAR DRILLED	REMARKS
——	¼S	S	T	R	M		
		10 15	44	19	2	1900	Depth 42 ft., water good, pump and house,
	NE NW	31 32	44	18	2	1900	Depth 48 ft., water good, pump and house.
	NW	20	46	23	2	1900	Depth 87 ft., water good, pump and house.
	SW SE	31 36	19	17 18	2	1899	Depth 77 ft., water good, pump and house.
	NE NW	8 9	19	18	2	1899	Depth 200 ft., water good, pump and house.
	NW SW	10 15	18	24	2	1899	Depth 164 ft., water good, pump and house.
	SW SE	18 13	23	28 29	4	1899	Depth 60 ft., water very good, pump and house.
	NE NW	16 15	22	29	4	1899	Depth 120 ft., water very good, pump and house.
	SE SW	20 21	23	28	4	1899	Depth 40 ft., water very good, pump and house.
	NE	13	22	23	4	1899	Depth 125 ft., water soft and good, pump and house.
		16 17	18	25	2	1900	Depth 248 ft., water good, pump and house.
		3 4	23	28	4	1900	Depth 121 ft., water good, pump and house.
		7 12	24	28 29	4	1900	Depth 131 ft., water good, pump and house.
At Swift Current		25	15	14	3	1901	Depth 174 ft., water good, pump and house.
	Bet.	21 28	8	26	4	1901	Depth 35½ ft.. water good, pump and house.
At Kenlis.	"	22 23	19	11	2	1901	Depth 279 ft., water good, pump and house.
		36	8	26	4	1901	Depth 46 ft., water good, pump and house.
At Wolseley.	Bet.	11 12	17	10	2	1901	Depth 135 ft., water good, pump and house.
N. of Percival.	"	19 24	16	3	2	1901	Depth 137 ft., water good, pump and house.
	"	31 32 5 6	14 15	2	2	1901	Depth 108 ft., water good, pump and house.
	"	16 15 9 10	18	17	2	1901	Depth 120 ft., water good, pump and house.
	"	21 22	13	4	2	1901	Depth 115 ft., water good, pump and house.
	"	4 5	14	4	2	1901	Depth 60 ft., water good, pump and house.
S. of Pense.	"	7 13 12 18	16	21 22	2	1901	Depth 400 ft., water good, pump and house.
At Pense.		9	17	22	2	1901	Depth 154 ft., water good, pump and house.
	"	11 14	18	17	2	1901	Depth 100 ft., water good, pump and house.
	"	3 4	16	3	2	1901	Depth 120 ft., water good, pump and house.
At Oxbow.	"	23	3	2	2	1901	Depth 130 ft. (To be completed.)
	"	10 11	19	17	2	1901	Depth 226 ft., water good, pump and house.

SCHEDULE of Public Wells.—*Continued.*

LOCATION						YEAR DRILLED	REMARKS
——	¼S	S	T	R	M		
	Bet.	29 30	14	21	2	1901	Depth 105 ft., water good, pump and house.
	"	20 21	14	21	2	1901	Depth 105 ft., water good, pump and house.
At Carmel School House.	"	9 16	18	26	2	1901	Depth 253 ft., water good, pump and house.
	"	33 34	14	22	2	1901	Depth 118 ft., water good, pump and house.
At Rose Lane School House.	"	35 36	17	9	2	1901	Depth 130 ft., water good, pump and house.
	"	19 24 13 18	15	31 32	1	1901	Depth 177 ft., water good, pump and house.
	"	31 36	18	17 18	2	1901	Depth 202 ft., water good, pump and house.
At Summerside School House.	"	26 27	17	28	2	1901	Depth 300 ft. (To be completed.)
	"	27 28	12	30	1	1901	Depth 70 ft., water good, pump and house.
	"	21 28	18	18	2	1901	Depth 130 ft., water good, pump and house.
	"	11 14	15	22	2	1901	Depth 101 ft., water good, pump and house.
	"	4 5	15	22	2	1901	Depth 101 ft., water good, pump and house.
At centre mound of Sec. 34.	"	3 34	18 19	18	2	1901	Depth 149 ft., water good, pump and house.
At Poplar Grove School House.	"	28 29	19	9	2	1901	Depth 190 ft., water good, pump and house.
At High Bluff School House.	"	18 19	19	9	2	1901	Depth 250 ft., water good, pump and house.
	N bdy	35	18	31	1	1901	Depth 70 ft., water good, pump and house.
At Glen Ewen.		34	2	34	1	1901	Depth 220 ft., water good, pump and house.
	Bet.	24 25	14	22	2	1901	Depth 114 ft., water good, pump and house.
	W b'y NW ¼	15	14	22	2	1901	Depth 120 ft., water good, pump and house.
At Stirling.		29	6	19	4	1901	Depth 450 ft., water good, pump and house.

At several of the wells provided last year, and at some of those previously put down, much trouble was caused, after the well was completed and pump put in, by silt or sand rising in the pipe and shutting off the water supply from the pump.

In many districts where we are putting down deep wells the water supply is found in a strata of sand or fine gravel, and if the supply is strong it is difficult to shut out that material so as to prevent its interference with the action of the pump. We have tried several kinds of strainers, but have abandoned them all for a length of pipe closed at the bottom and perforated for some distance from the bottom with holes of a size suitable to keep out the loose material, and at the same time admit the water.

We also experienced last year the trouble, referred to in previous reports, in keeping pumps in public wells in order. It is reasonable to expect that the public, for whom these wells and pumps are supplied, will exercise ordinary care in their use, but this expectation is disappointed in many instances, as pumps have been damaged or broken through sheer carelessness, and we have had to keep a man employed for a considerable time visiting public wells and putting pumps in order.

In wells in which water is obtained at a greater depth than two hundred feet, difficulty is experienced in pumping the water by manual labour, and we have, therefore, had to arrange to provide several of the deep wells with windmill power to lift the water. We purpose putting up a windmill with a tank erected in the windmill tower, so that water can be drained off from tank to fill water carts or barrels. Windmills of this character can be fitted to work automatically. That is, when tank is full, the mill will be thrown out of gear and will cease to pump, but this arrangement can, of course, only be made use of in the summer, and other arrangements for care and opertaion of the windmill will have to be made during the winter months. Windmills of the above character, fitted with a fifteen barrel tank, can be put in place for about $150.00 each.

The report of Mr. William Duff, Inspector of Well Boring Machines, is appended.

REGINA, January 1st, 1902.

J. S. DENNIS, Esq.,
Deputy Commissioner of Public Works,
Regina.

SIR,—I beg to submit herewith a report of the work done by well boring machines for the season ending December 31st, 1901.

Six well boring machines were operated which bore to a depth of 300 feet, and two Ohio Jetting Machines, which bore to a depth of 600 feet. These machines were distributed throughout the Territories at the following districts:

Machine No. 2 in the Souris District.
Machine No. 3 in the North Balgonie District.
Machine No. 24 in the Wolseley District.
Machine No. 25 in the Whitewood District.
Machine No. 28 in the Moose Jaw District.
Machine No. 32 in the Macleod and Lumsden Districts.
Machine No. 34 (Ohio Jetting Machine) operated in the Pense, Moose Jaw, Kenlis, North Wolseley and Maple Creek Districts.
Machine No. 35 (Ohio Jetting Machine) operated in the Lethbridge District.

The following is a list of work done in each district:

1 well in Swift Current Village.
6 wells in the North Balgonie District.
4 wells in the Macleod District.
1 well in the Lumsden District (not finished).
7 wells in the Whitewood and Moosomin Districts.
2 wells in the Pense District.
5 wells in the Moose Jaw District.
6 wells in the Wolseley District.
2 wells in the Souris District (one not finished).
3 wells in the Lethbridge District.

Some of these wells are down to 300 feet without obtaining water, and are awaiting the deeper machine next season.

Pumps have been put in and pump houses provided at the following places:

5 in North Balgonie District.
5 in Whitewood District.
2 in Pense District.
1 in Moose Jaw District.
1 in High Bluff District.
1 in Fleming District.
1 in Swift Current Village.

No. 2 Machine operating in the Souris District, was sent out in charge of Mr. Colin Bird, but after working a considerable time at Oxbow he lost his tools, and, being instructed to visit him, I found on arrival that the hole was so crooked it was impossible to get down any deeper. Therefore I moved the machine about 30 feet and started a new hole, and gave him instructions as to the operation of this machine. Three weeks afterwards I was again instructed to proceed to Oxbow, and on arrival found that the foreman had got down about 100 feet and could go no further. The machine was therefore put in charge of Mr. James Ironside as foreman, and he continued the well to about 270 feet, when he was instructed to cease operations and leave the hole to be deepened by one of the Ohio Machines next year.

No. 3 Machine, operating in the North Balgonie District, had a very successful season, in charge of Mr. James Stewart, 7 wells being put down, with a good supply of water in each.

No. 24 Machine, in charge of Mr. W. H. Ward, foreman, was operated in the Wolseley District. This district is one of the hardest in which to put down wells, as there are many boulders to contend with which take a great deal of time.

No. 25 Machine, in charge of Mr. Fred Doman as foreman, has made the best run of the season, considering the distance the machine has had to travel, and has been successful in all cases in getting water.

No. 28 Machine, in charge of Mr. Albert Hammond as foreman, was operated in the Macleod District the first part of the year, where five wells were put down. The machine was then shipped to Pense to clean out the well there ready for the deeper machine. It was then removed to Lumsden where it was operated until October, when the tools were lost in the well at 285 feet, with part of the rope attached.

No. 32 Machine, in charge of Mr. Fred Jackson, was operated in the Moose Jaw District, but was not a success, not having found water in any of the wells operated on. In June the tools of this machine were lost by the rope breaking 40 feet from drill, and tools fell from nearly the surface down to bottom—260 feet. This kind of break is very difficult to overcome, as the rope has to be cut off on top of drill before the tools can be recovered. The casing has been left in the holes drilled in the Moose Jaw District so as to permit of their being deepened with a jetting machine next season.

No. 34 Machine, the Ohio machine in charge of myself, was operated in the Pense, Moose Jaw, Kenlis, High Bluff and Maple Creek Districts, and water was obtained at all the different points where the machine was operated.

No. 35 Machine, Ohio Jetting Machine, in charge of David Duff.

This machine was purchased later on in the season to be operated in the Lethbridge Local Improvement District, and was sent out to deepen wells which had previously been put down in that district, starting at Stirling Village, and after working some time in the sand stone rock one of the drill rods broke off at the coupling, 400 feet down, leaving a piece in the hole, and, owing to not having a fishing tool for that purpose for these machines, the work was delayed till one could be procured from Winnipeg.

The machines, six Austin machines, were all repaired during last winter by myself, in the warehouse at Regina, and put in first class shape for the season's work. There were also six new boring attachments made, one for each machine, with a six inch auger for quicker work on the surface until boulders are met, and the foremen all speak well of this attachment. There were also 5 new horse powers purchased to operate the drills in use, as the old ones were found too slow. Machines Nos. 24 and 25 were supplied with poles and cable.

I would recommend the following changes to be made in carrying on the work of well drilling for next season :

1st. That 5 inch sleeve coupling drive pipe be adopted instead of 5⅝ inch inserted couplings as now in use The reason of this is that in sections where there are boulders, or much sand and gravel, the inserted casing will not stand driving as it either flattens or telescopes, and in that case that length is of no more use, as it cannot be repaired here. The 5 inch casing is heavier, and will, in most cases, resist the strain.

2nd. That the use of pole tools instead of cable tools be adopted, with a light pair of slips or jars with box and pin to fit tools, as there have been breakages with the cable this season causing delay and extra expense. Especially in districts where boulders are met with the poles are by far the best, as the drill can be held on any particular part of the hole cutting off stones, and it is almost impossible to hold tools on stones with cable.

3rd. That a various supply of fishing tools for the recovery of lost tools be kept on hand.

4th. That the services of more practical foremen be obtained for machines Nos. 28 and 32.

5th. That a supply of 1¼ inch butt welded iron pipe, about 4,000 feet, and the same of 7/16 galvanised steel rods 18 ft long. Also a quantity of best 7/16 couplings for pumps be obtained, and that each foreman be kept supplied with at least 160 feet, with one pump cylinder, to enable him to thoroughly test a well before leaving it, and to put pump head on and leave well completed with the exception of pump house.

6th. That next season a competent foreman be obtained for No. 34 machine, so that my services may be utilised in visiting the different machines from time to time to see that they are being properly worked.

7th. That a new daily report be provided, with columns for each day of the week, number of feet bored each day, number of feet of casing put in well each day, character of material bored through, time moving from last place, and the amount of casing on hand ; also a column for remarks and depth of water obtained. This report form to be furnished to each foreman to be filled out and returned to the Department at the end of each week, and that, at the completion of each well he shall fill out one of the regular forms now used as to the completion of well.

8th. That in putting in deep pumps such as we have been using, the suction pipe be plugged in the bottom, and perforated at least 10 feet from bottom with 5 rows of 3/16 inch holes for strainer, so that pipe may rest on bottom of well as a support, to take the weight off the base of pump head.

9th. That, owing to the depths of a great number of wells now put down, from which the settlers are unable to raise the water without heavy labour, it would be well to consider the advisability of putting up windmills to raise the water from these wells.

Your obedient servant,
WILLIAM DUFF,
Inspector of Well Boring Machines.

LOCAL IMPROVEMENT BRANCH.

Staff.................... Clerk in charge.
4 clerks.
2 stenographers and typewriters.

The work of this branch increased, as was to be expected, in a very marked degree during last year, and has reached limits which tax the utmost efforts of the staff.

This branch is charged with the administration of the Local Improvement and Village Ordinances, and the provisions of The School Assessment Ordinance relating to the collection of overdue taxes. For convenience of reference these Ordinances are dealt with separately in the following remarks regarding the work of the branch during the past year.

LOCAL IMPROVEMENT ORDINANCE.

At the last session of the Legislative Assembly The Local Improvement Ordinance was amended and consolidated, and is now in form which will not require any marked amendment except in the direction mentioned further on, for some time.

The provisions of the Local Improvement Ordinance are now very generally understood by the rural population of the Territories, and both in the small and large districts there is a very general compliance with the provisions of the law, and a disposition to do work and pay taxes with a promptness which was very noticeable by its absence in the earlier years following the introduction of this law. It seems now to be generally recognised that some system of taxation, under which land owners shall bear their just proportion of the cost of providing the improvements required to meet the rapid development of the country, is fair, and that the tax imposed by The Local Improvement Ordinance is a reasonable one.

The number of Small Local Improvement Districts increased during the past year by two only, and the present standing of these districts is as follows:

SMALL DISTRICTS.

There are now organised and in operation in the Territories the following number of Small Local Improvement Districts, the dates of organisation being given for the purpose of reference:

Districts organised, voluntary, in 1890..........	1	
do do in 1893..........	2	
do do in 1894..........	19	
do do in 1895..........	20	
do do in 1896..........	15	
do compulsory, in 1897..........	181	
do do in 1898..........	178	
do do in 1899..........	32	
do do in 1900..........	33	
do do in 1901..........	12	
		493
Districts disorganised for various reasons		32
Number of districts now in operation		461

The work performed by the above districts is appended in the usual schedule form as being the most convenient for reference.

Amount collected by overseer for taxes for 1901, largely payments by companies and other nonresident land owners	$26,614.84
Number of days worked in commutation of taxes	53,171
Number of miles of road graded..............	598
do do do cleared..............	567
do do fireguard ploughed..........	940
do bridges built......................	239
do do repaired...................	225
do culverts built......................	1,213
do do repaired...................	341
do dams built.........................	34
do do repaired....................	71
do holes, old wells, sloughs, etc., filled ...	2,595
do yards of corduroy completed.........	36,384
Average amount paid overseer for assessing and overseeing work of the district...........	$31.80

A comparison of the above schedule with that published in the report for 1900 shows a material increase in practically all branches of work undertaken by Small Local Improvement Districts last season. The wet weather of the earlier part of the year seriously interfered with the completion of district work, and when harvesting commenced it was impossible to finish work which had been left over from the spring, as the farmers all had their hands full in cutting and threshing the bountiful crop which was so universal.

It will be noted from the foregoing statement that some 53,000 days were worked in commutation of taxes in small districts, and, valuing this labour at $1.25 per day, and adding the $25,614 collected in cash, we have a sum of $92,114 as representing the amount expended in completing work. The work scheduled as having been completed is certainly worth the sum mentioned, and in considering the matter attention is again directed to the fact that work performed in commutation of taxes is not, in the majority of cases, satisfactory work, and there is little doubt that, had the districts expended $92,114 in cash in paying for work done by contract or under competent foremen, more satisfactory results would have been obtained.

This feature of the local improvement work in small districts has been dealt with in all previous Annual Reports. In the report for 1900 the following remarks regarding the matter were included, and are quoted now as they clearly indicate the position:

"It is admitted that in the early years of the introduction of the Local Improvement law it was desirable to give the resident population an opportunity to commute their taxes by labour so as to get the law introduced and generally understood. That stage has now, however, been passed and the time has come when the right to commute should be done away with and the law made as productive as possible of good results.

"In accepting labour in commutation of Local Improvement taxes we are simply beginning where the municipalities of the older Provinces of the Dominion are leaving off, after having proved, by almost half a century of effort, that commuted labour accomplishes very little in the way of permanent road improvements.

"It is not necessary to advance any argument in support of the foregoing statement, because the fact that labour performed in commutation of taxes is half hearted is admitted by all. There is, I think, abundant evidence available to indicate that a tax of $2.00 on a quarter section paid in cash and expended in employing proper labour, will accomplish much more than a tax of $2.50 on a quarter section commuted by labour, but the fact that the day which any farmer spends with a team in commuting such tax should be worth more than $2.50 to him, if expended in his farming operations, does not seem to be generally realised.

"Our Local Improvement law is well suited to the present requirements of the Territories; it is now understood by the people, and is generally accepted as a required enactment. The work being performed under the law is good work as far as it goes, and is doing much to improve our means of communication between settlements and market centres, but the results obtained under the law would be increased a hundred fold were the commutation clauses of the Ordinance repealed and a straight tax imposed to be expended under proper supervision in completing needed improvements. Many of the more progressive Local Improvement Districts have signified in a general way their desire for this change, but although the amendments to the Ordinance passed in 1899 provided for doing away with commutation upon receipt of a petition from a district, no such petitions have yet been received, and this is only one more case of the failure to introduce needed and desirable changes which results from dependence upon voluntary action by those most interested."

In amending The Local Improvement Ordinance at the last session of the Legislative Assembly, provision was made for doing away with commutation upon petition by the ratepayers, and that some districts realise the importance of endeavouring to improve their district work in that way is shown by the fact that nine have indicated their desire to have commutation done away with and all taxes paid in cash.

For the purpose of obtaining a general expression of opinion from small districts regarding the matter of commutation, a circular letter was sent to all overseers in the latter part of the year asking them to have the subject discussed at the annual meeting of the district, and a resolution with reference thereto passed. Two hundred and thirty eight districts responded to this request, two hundred having resolved that commutation should be continued and thirty eight that it should be done away with.

This expression of opinion indicates that the sentiment in favour of the abolition of commutation is spreading rapidly, and the time will doubtless soon come when the weak point in our present Local Improvement law can be wiped out by doing away with the present provisions relating to commutation. The results which have been obtained by commuted labour in attempting to improve country roads in the older Provinces of Ontario have been referred to in previous reports, but the following quotation from the report of the Commissioner of Highways for Ontario for 1900 illustrates a concrete case which throws a marked light upon this subject.

SOME STATISTICS.

> An examination of your township records shows me that during the last year you have put 2,528 days of statute labour and $1,150 in cash on your roads. During the past ten years 25,280 days of labour, and $11,432 have been expended. Therefore you have spent on your roads during the past ten years $36,012, or its equivalent.
>
> That, as you must admit, is a very large expenditure and should, if properly expended, have permanently macadamised one-third of your roads.
>
> Has this been done?
>
> If not there must be something wrong with your system. It should be discussed by the ratepayers, and so remedied that whatever expenditure is made will provide its full value in improvements on your roads.
>
> Instead of being willing to discuss this matter in a friendly and honest way, some people become angry at the idea of our even attempting to fairly discuss statute labour or consider its defects or merits.
>
> The statute labour system is simply a certain form of taxation which should be collected or expended as fully and as fairly as any other tax. and if some are obliged to discharge this tax faithfully and well, or do so of their own will, this system should be such as to oblige all others to do the same.
>
> In connection with all other expenditures the ratepayers at the polls want to know exactly what has been done with the money, and every expenditure is criticised to the minutest detail. But in this, while many do their work properly and well, a considerable part of the labour is not performed; more is done in a half spirited manner, and much is absolutely wasted. Often the money is misapplied, being scattered in small amounts for temporary work, which is little better than burying it in the mud.

One of the strongest indications of the general satisfaction now existing with regard to the Local Improvement law, as far as small districts are concerned, is afforded by the fact that many districts have, during the past two years, asked that the rate of taxation be increased from $2.50 on a quarter section to $3.00 and $5.00. The Ordinance as amended at the last session provided for increase of taxation by vote of the majority of residents, and availing themselves of that provision twenty-nine districts have taken steps to have the rate of taxation increased to amounts varying from $3.00 to $5.00 on a quarter section. This action indicates in a very graphic manner the disposition of our rural population to do all they can to assist in completing road improvements.

This year we purpose endeavouring to improve the character of the work performed in small districts by issuing a new edition of the Manual of Instructions for the guidance of Overseers, giving more detailed information relative to the proper methods of making road improvements and building small bridges.

For convenience of reference the usual schedule of small Local Improvement Districts is appended.

LIST of Local Improvement Districts with Description of and Name of Overseer.

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO
West Principal Meridian.				
Range 30				
Tp 1	W. H. Coney	Winlaw,	Assa.	152
2	Simpson Shaw	"	"	156
3	Alex. McClung	"	"	150
9	William Stephen	Heron,	"	158
11	Arch. McCormick	Fleming,	"	163
10	William Stableford	Lippentott,	Man.	172
12	Henry Davis	Fleming,	Assa.	295
13	Jas. Pearson	"	"	296
14	Jas. H. Young	Moosomin,	"	298
15	Ronald Stewart	Farndale,	"	299
16	Harry Bayless	Welwyn,	"	297
19	Emerson Blygh	Spy Hill,	"	494
22	Henry J. Veal	Langenburg,	"	135
23	Philip Popp	"	"	133
Range 31				
Tp 1	Jacob G. Burke	Elmore,	"	142
2	Thos. Delahay	Gainsborough,	"	160
3	Edmund Passino	Carievale,	"	144
11	J. W. Hardaker	Fairlight,	"	175
12	Jno. H. Reid	Moosomin,	"	302
13	Thomas Wains	"	"	303
14	R. J. Phin	"	"	304
15	Malcolm McNeil	"	"	305
16	Albert Webster	Hilburn,	"	306
17	Jos. A. Dunsmore	Rocanville,	"	307
18	Robt. Grear	Spy Hill,	"	308
19	Salby Carter	"	"	417
21	Harman Heinsohn	Langenburg,	"	79
22	Christian Fieseler	"	"	88
23	Adolphe Backer	"	"	134
24	Gisli Egilsson	Logberg	"	497
25	Casper Ragiber	"	"	411
Range 32				
Tp 1	J. W. Harris	Workman,	"	161
2	T. Thomas Wilson	Carnduff,	"	167
3	W. J. Foster	"	"	157
4	John Campbell	Carievale,	"	484
11	George Faulkner	Rossetti,	"	18
12	Geo. Wells	Valley,	"	191
13	Wm. Bruce	"	"	309
14	Roderick McCormick	Red Jacket,	"	310
15	Jos. M. Buck	Wapella,	"	311
16	Joseph Goodman	Hillburn,	"	312
17 east two tiers of Sections only	J. A. Dunsmore	Rocanville,	"	307
17 except two east tiers of Sections	Jas. Stewart	Carnoustie,	"	313
18	James Ormiston	Dongola,	"	314
19	W. L. Brown	"	"	448
20	John H. Riddall	Redpath,	"	86
21	Michael Buckborger	Langenburg,	"	94
22	Henry Roberts	Churchbridge,	"	143
23	G. J. Heinrickson	"	"	132
24	J. Einarrson	Logberg	"	82
25	Alex. Salahab	Rothbury	"	499

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Principal Meridian.				
Range 33				
Tp 2	Samuel Robertson	Carnduff,	“	149
3	George Melton	“	“	154
4	Thos. Timmons	“	“	182
10	Alex. Calder	Wawota,	“	166
11	Alex. Calder	“	“	166
12	A. H. Salmon	Riga,	“	315
13	Donald McKinnon	Earlswood,	“	316
14	Colin Campbell	Wapella,	“	317
15	Francis T. Low	“	“	318
16	Benjamin Wainman	“	“	319
17	Alex. H. McQuarrie	Carnoustie,	“	320
18	William M. Gordon	Hazel Cliffe,	“	321
19	Wm. L. Brown	Dongola,	“	448
20	John H. Riddall	Redpath,	“	86
21	William Rowland	Riversdale,	“	96
22	Henry Roberts	Churchbridge	“	143
23	J. Heinrickson	“	“	132
24	J. Einarrson	Logberg,	“	82
Range 34				
1	James Porter	Oxbow,	“	176
2 fr	Samuel Robertson	Carnduff,	“	149
3 fr	George Melton	“	“	154
4 fr	Thos. Timmons	“	“	182
7 fr	Jno. A. Clarke	Manor,	“	474
8 fr	Philip Cooke	Cannington Manor,		452
9 fr	Geo. D. Dickin	Cannington Manor,		184
10 fr	A. M. Hamilton	Glen Adelaide,	“	173
11 fr	Alex. Calder	Wawota,	“	166
12 fr	A. H. Salmon	Riga,	“	315
13 fr	Donald McKinnon	Earlswood,	“	316
14 fr	Colin Campbell	Wapella,	“	317
West Second Meridian.				
Range 1				
Tp 1	James Porter	Boscurvis,	“	176
2	Geo. Robson	Oxbow,	“	162
3	James McIntosh	“	“	164
4	Thos. Montgomery	“	“	153
7	Jno. A. Clarke	Manor,	“	474
8	Philip Cooke	Cannington Manor,		452
9	George D. Dickin	“ “		184
10	A. M. Hamilton	Glen Adelaide,	“	173
11	John Haldenby	Wawota,	“	271
12	Jas. Maywood	Fairmede,	“	130
13	John Kidd	“	“	128
14	John McDonald	Benbecula,	“	137
15	Arch. Bell	Wapella,	“	440
16	William Elliott	“	“	120
17	S. A. Petchell	Forest Farm,	“	123
18	Joe Kruppa	Kaposvar,	“	124
19, 19a, and 20 south of Little Cut Arm creek	Stephen Barath	“	“	105
19 and 20 north of Little Cut Arm creek	Arthur Ford	“	“	99
21	Jas. Nixon	Kimbrae,	“	136

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Second Meridian.			
Range 1—*Con.*			
Tp 22	John C. Bird	Clumber, “	6
23	C. W. C. Saunders	Saltcoats, “	8
24	Ernest Cass	“ “	5
25	Robt. McKay	“ “	10
27	H. Thomas	Mulock, “	531
28	G. Prokoposzuk	“ “	532
Range 2			
Tp 1	Angus Stalker	Boscurvis, “	168
2	Thomas H. Gregson	Oxbow, “	268
3	Frank W. Gossell	“ “	145
4	Thos. Dickson	“ “	141
5	W. Summerton	Dalesboro, “	483
6	Robert Hume	“ “	478
7	George Brack	Dennington, “	189
8 and 9	John Rutherford	Cannington Manor,	178
10 Sections 1, 24, 25, 26, 34, 35 and 36 only	A. M. Hamilton	Glen Adelaide, Assa.	173
11	George Kivell	High View, “	486
13	Jas. May	Poplar Grove, “	147
14	W. H. James	Whitewood, “	114
15	W. A. Mann	“ “	129
16	P. M. Gillis	“ “	113
17	Duncan J. Robertson	“ “	100
18	Ole Peterson	Ohlen, “	103
19, 20 and 19a, south of Little Cut Arm creek	Alex. Stenberg	“ “	104
22	A. C. Thompson	Perley, “	16
23	J. W. McGregor	Saltcoats, “	9
24	Gilbert Hughes	“ “	7
25	John Jowsey	“ “	84
26	H. L. Kerr	Yorkton, “	533
27	E. H. Wilson	“ “	534
28	Charles H. Lakey	Mulock, “	453
Range 3			
Tp 3	David McKnight	Alameda, “	148
4	T. A. Deyell	“ “	155
6	Jeremiah Coffey	Dalesboro, “	151
7	E. Richardson	Carlyle, “	250
8 and 9	John D. Stewart	Arcola, “	186
11	D. M. Murray	High View, “	165
13	Alfred Law	Montgomery, “	395
14	John Dovell	Whitewood, “	119
15	Stephen A. Hall	“ “	112
16	John King	Whitewood, “	98
18, 19 and 19a, north and east of Round lake	Nils Dahl	Ohlen, “	394
North ½ 22 and Tp. 23	Robert Maddaford	Crescent Lake, “	11
24	William S. Outhwaite	Yorkton, “	420
25	Thos. Goodchild	“ “	127
26	Thos. W. Derry	“ “	89
27	William McDougall	Wallace, “	492
28	Jas. Z. Walters	Yorkton, “	410
29 west ½ only	William Tetlock	“ “	447

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Second Meridian.				
Range 4				
Tp 3 and south ½ Tp 4	Thos. Collopy	Alameda,	"	384
7	Sandford McNeill	Arcola,	"	180
8	Willard Scarrow	"	"	270
11	J. E. Henry	Fletwode,	"	183
14	J. F. Cunningham	Fitzmaurice,	"	146
16	Jos. Cope, Senr	Broadview,	"	115
Fr 18, south ½ 19 and fr 19a	Thomas Bawdon	Cotham,	"	244
22, except Sections 1, 2, 3, 4, 5, 6, 10, 11 and 12 and Tp 23	Wm. Cross	Crescent Lake	"	4
24	John McInnes, Junr	Yorkton,	"	371
25	Thos. A. Waterfield	"	"	170
26	F. Reaman	"	"	3
27	Andrew Gurel	Ebenezer	"	252
28	James Sanderson	"	"	251
29	Wm. Tetlock	Yorkton,	"	447
Range 5				
Tp 1	Jas. S. Upper	North Portal,	"	365
7	Ernest Inglehart	Arcola,	"	284
8 and 9	Jos. H. Bennett	"	"	238
15	Wm. Evans	Broadview,	"	116
16	Wilfrid Wilde	"	"	364
Fr 18, south ½ 19, and fr 19a	Thomas Bawdon	Cotham,	"	244
23 north two tiers of Sections and 24	John Kovacz, Junr	Yorkton,	"	378
25	Robert Roussay	"	"	428
26	Gilbert Stainger	"	"	253
27	John Lange	"	"	174
28 and south ½ 29	Henry W. Cooper	Whitesand,	"	254
North ½ of Tp 29	Wm. Tetlock	Yorkton,	"	447
Range 6				
Tp 1	Robert Dunbar	North Portal,	"	185
7	Henry McCartney	Coteau,	"	188
8 and 9	P. A. Finn	Percy,	"	181
15	Albert Dash	Broadview,	"	102
16	Jacob Croll	"	"	101
19	Johann Hornung	Mariahilf	"	493
20	Johann Holitzky	"	"	536
Sections 25, 26, 27, 34, 35 and 36 in Tp 23 and east ½ Tp 24	John Kovacz, Junr	Yorkton,	"	378
25 west half only	J. C. Wilson	Willowbrook	"	427
25 east half only	Robert Roussay	Yorkton	"	428
26 east half only	Gilbert Stainger	"	"	253
26 west half only	Ed. Fred. Everest	Theodore.	"	380
27 and Secs. 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17 and 18 in Tp 28	George Fernie	"	"	171
28 2 east tiers of Secs. only	Henry W. Cooper	Whitesand,	"	254
28 Secs. 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34 only	A. C. Tracey	Theodore,	"	368
29 Secs. 5, 6, 7, 8, 17, 18, 19, 20, 29, 30, 31 and 32 only				

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Second Meridian.			
Range 7			
Tp 8	Jerry Foy	Alma, Assa.	177
15	Philip Leech	Grenfell, “	61
16	Fred. Aston	“ “	62
17	Angus McPherson	“ “	75
18	G. D. Fitzgerald	“ “	60
19 and 19a, portions south of river	Norman McLeod	Hyde, “	388
20	Philip Hauser	“ “	93
19 portion north of river	John Gravy	“ “	389
25	J. C. Wilson	Willowbrook “	427
26	Ed. Fred. Everest	Theodore, “	380
27	George Quinton	Beaverdale, “	379
28	A. C. Tracey	Theodore, “	368
Range 8			
Tp 2 except village of Estevan	W. J. Hobbs	Estevan, “	140
16	James S. McDonell	Grenfell, “	346
17	James McCowan	Summerberry, “	347
18, 19 and 19a, south of Qu'Appelle river	Robt. J. Parsons	Ellisboro, “	348
18, 19 and 19a, north of Qu'Appelle river	Alex. Campbell	“ “	349
20	Fred. Tressel	Neudorf, “	80
21	John Matthews	Pheasant Forks “	78
25 east ½ only	J. C. Wilson	Willowbrook “	427
26 east ½ only	E. F. Everest	Theodore, “	380
28 Secs. 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27 and 28 only	A. C. Tracey	“ “	368
28 Secs. 31, 32, 33, 34, 35 and 36 only.			
Range 9			
Tp 15	Jas. Macallister	Moffatt, “	350
16	Alex. Fleming	Adair, “	351
17	T. Ellis	Wolseley, “	352
18 and 19a	Mathew Snow	Ellisboro, “	353
19	Geo. Simpson	“ “	354
20	J. B. Gamble	Pheasant Forks, “	76
21	T. S. Cornell	“ “	72
Range 10			
Tp 15	Thos. Taylor	Moffatt, “	355
16	Wm. Gibson	Wolseley, “	356
17	Samuel Mitchell	“ “	357
18 portion south of river	Geo. E. Draper	Ellisboro, “	358
18, 19a and 19 north of river	James Balfour, Senr.	Hill Farm, “	359
20	John Stueck	Chickney, “	64
21	H. M. Aldous	Lorlie, “	74
Range 11			
Tp 15	V. R. Vogier	Montmartre, “	367
20	W. M. Thomson	Abernethy, “	19
21	Chas. Stevenson	Balcarres, “	330
22 west of Indian reserve	Arthur Newstead	Fort Qu'Appelle “	462

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Second Meridian.			
Range 12			
Tp 20 portion north and east of Qu'Appelle river & lakes	J. R. Balfour	Saltoun, Assa.	27
20 portion south and west of Qu'Appelle river & lakes	Wm. Braithwaite	Fort Qu'Appelle "	398
21	Joseph Shore	" "	190
22	Arthur Newstead	" "	462
Range 13			
Tp 20 and that portion south of river and lake of Tp 21	Wm. Braithwaite	Fort Qu'Appelle "	398
21 portion north of river & lake	S. R. McLeod	Lebret, "	426
22 Secs. 31, 32, 33 and 34 only			
23 four west tiers of Secs. only	Alex. Watson	Hayward, "	456
Range 14			
Tp 20	Cyrus Booth	Fort Qu'Appelle "	397
21 south of river and lake & including H.B. reserve	J. Ormiston	" "	399
22 Secs. 35 and 36 only			
23 two east tiers of Secs. only	Alex. Watson	Hayward, "	456
Range 17			
Tp 15	John Buhler	Kronau, "	65
16	Jacob Hicks	Hicksvale, "	85
17	J. A. McGirr	Balgonie, "	87
18	Jakob Kohlruss	" "	138
19 and 20	Walker Holden	Hednesford, "	50
Range 18			
Tp 16	Albert Weeks	Regina, "	131
17	Samuel Gilbert	Regina, "	70
18	Samuel Wagner	" "	122
19	William White	" "	49
44	F. B. Pengelly	Melfort, Sask.	117
45 Secs. 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30 only	Geo. Ambury	" "	386
Range 19			
Tp 16	J. C. Moore	Regina, Assa.	421
18	Jno. King	" "	107
19	Andrew Ormiston	" "	108
44	W. G. Grainger	Melfort, Sask.	121
45 Secs. 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27,28, 29, 34, 35, 36 only	Geo. Ambury	Melfort, "	386
Range 20			
Tp 16	R. J. Boyd	Regina, Assa.	193

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Second Meridian.				
Range 20—*Con.*				
Tp 17	Joseph Boyd	Regina,	Assa.	196
18	Robt. G. Fitzpatrick	"	"	91
19	John E. Petrie	Tregarva,	"	109
20	Isaac W. Sutton	"	"	90
44	John Thompson	Flett's Springs,	Sask.	449
Range 21				
Tp 16	W. Vancise	Regina,	Assa.	488
17	E. L. Williamson	Pense,	"	126
18	Jno. Martin	Wascana,	"	139
19	S. S. Dickson	Lumsden,	"	118
44 Secs. 21, 22, 25, 26, 27, 28, 30, 31, 33, 34, 35, 36 only.				
45	Robert Hartley	Kinistino,	Sask.	106
Range 22				
Tp 16	Thos. Clark	Pense,	Assa.	63
17	William Cator	"	"	243
18	C. E. Fish	Cottonwood,	"	92
19	Jno. Campbell	Lumsden,	"	95
45	W. M. Hamilton	Kinistino,	Sask.	194
48 portions of each township 49 lying between rivers	Jas. Fraser	Steep Creek.	"	375
Range 23				
Tp 17	Jno. Hagerty	Pense,	Assa.	543
18	Thomas Brooks	Stony Beach,	"	179
19	D. McArthur	Disley,	"	195
46	George Taylor, Junr	Brancepeth,	Sask.	97
48 and 49, portion of each township between rivers	J. R. Smyth	Steep Creek,	"	374
Range 24				
Tp 17	Nelson T. Allcock	Pasqua,	Assa.	264
18	J. W. Cafferata	Stony Beach,	"	204
46	Jas. Isbister	Birch Hills,	Sask.	461
47 and 48, portions between rivers	George S. Reid	Cecil,	"	377
Range 25				
Tp 16	Harry Smith	Pasqua,	Assa.	535
18	Daniel Gilmour	Moose Jaw,	"	34
19 fr. south of Buffalo lake	Robert McCartney	Point Elma,	"	57
46	Peter Campbell	Puckahn,	Sask.	376
47	Jno. Thomson	Prince Albert,	"	373
48	Thos. McCloy	"	"	372
Range 26				
Tp 17	David Copeland	Moose Jaw,	Assa.	276
18	W. J. Glover	"	"	242
19 south of Buffalo lake	Robert McCartney	Point Elma,	"	57
Fr 45 including Riverlots 1,2,3, 46 including River lots	Chas. Sutherland	Halcro,	Sask.	366

List of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Second Meridian.			
Range 26—*Con.*			
Tp 47	R. J. M. Sutherland	Prince Albert, Sask.	246
48 including River lots 52 to 82 inclusive and all of Hudson Bay Co's reserve not included within the town of Prince Albert	Robt. Stanley	" "	265
Range 27			
Tp 16	E. N. Hopkins	Pioneer, Assa.	200
17	Ben Smith	Boharm, "	36
18	Thos. Winn	Marlborough, "	203
45 including River lots 1 to 24 inclusive and Secs. 25, 26, 27, 34, 35 and 36 only.			
46 east half only	Felix E. J. McManus	Prince Albert, Sask.	245
45 south of river with River lots.			
45a	J. B. Boucher	St. Louis, "	288
45 west half only and River lots 25 to 48 inclusive	G. C. Spence	Willoughby, "	416
47 part not included in districts 391 and 392	Joseph Finlayson	Prince Albert, "	248
47 Secs. 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27 only	C. J. Cook	" "	391
47 Secs. 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21 only	Robt. Foulds	Kirkpatrick, "	392
Range 28			
Tp 16 Secs. 1, 12. 13, 24, 25, 26 only	E. N. Hopkins	Pioneer, Assa.	200
17	Joseph Getty	Caron, "	205
18	W. McBride	" "	266
43 Secs. 21, 22, 23, 24, 25, 26, 27, 34, 35, 36 only			
44	Isidore Dumas	Batoche Sask.	439
45a			
45 south of river including River lots 1 to 12 inclusive	Isidore Dumas	" "	439
Fr 46	Hector McDonald	Willoughby, "	281
Fr 47 except Secs. 1, 2, 13, 24	Denis Duffy	Lily Plains, "	247
Tp 47 Secs. 35 and 36 and River lots 1 to 51 inclusive			
48	Joseph Finlayson	Prince Albert, "	248
47 Secs. 1, 2, 13, 14 only	Robt. Foulds	Kirkpatrick, "	392
Range 29			
Tp 18	David L. Campbell	Caron, Assa.	215
West Third Meridian.			
Range 1			
46	Hector McDonald	Willoughby, Sask	281
47 including River lots 1 to 14 inclusive.			

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Third Meridian.				
Range 1—*Con.*				
Tp 48 fr. 49 portion south of Saskatchewan river	Denis Duffy	Lily Plains,	Sask.	247
Range 2				
Tp 42 and 43a	J. B. Friesen	Rosthern,	“	331
43 and 44	Alcide Marcotte	Duck Lake,	“	125
48 Secs. 28, 29, 30, 31, 32, 33 only and 49 west half only	G. W. Davis	Shellbrook,	“	337
Range 3				
Tp 42	Peter Siemens, Junr	Rosthern,	“	333
43 and 43a	Heinrik Wall	“	“	334
44	John Dallas	Wingard,	“	335
45 and 46	A. N. Peterson	“	“	336
48 Sec. 29, 30, 31, 32 only and 49 west two tiers of Sections only	F. Lorenz	Shellbrook:	“	385
48 Secs. 25, 26, 27, 28, 33, 34, 35, 36 only and 49 east four tiers of Sections only and 50 Secs. 1, 2, 3, 4, 9, 10, 11, 12 only	Samuel Halliwell	“	“	337
Range 4				
Tp 42	Diedrich Epp	Rosthern,	“	466
43	Gerhard J. Andress	“	“	340
44 except Secs. 1 to 7 inclusive and H. B. reserve	John J. Dyck	“		341
45 portion south of Saskatchewan river and including H. B. reserve and River lots 1 to 7 inclusive	C. H. Kallbfleisch	Carlton,	“	477
48 Secs. 25, 26, 27, 28, 29, 32, 33, 34, 35, 36 only	Samuel Halliwell	Shellbrook,	“	337
49 except Secs. 6, 7, 18, 19, 30, 31, 32, 33, 34, 35, 36	F. Lorenz	“	“	385
Range 5				
Tp 36	Jas. M. Eby	Saskatoon,	“	393
42	Jacob D. Neufeldt	Rosthern,	“	343
43 44 portion south of river including River lots 9, 10, 11 and Young Chippewayan Indian reserve	Geo. Schmidt	“	“	344
Range 6				
Tp 36 except part of Sec. 1 lying south of river and south half of 37	Henry Smith	Saskatoon,	“	280

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Third Meridian.				
Range 6—*Con.*				
Tp 36 part only of Sec. 1 south of river	J. M. Eby	Saskatoon,	Sask.	393
42	Jacob L. Weins	Rosthern,	"	475
Range 13				
Tp 15 west half	William Rutherford	Swift Current,	Assa.	383
Range 14				
Tp 15 east half	William Rutherford	"	"	383
Range 16				
Tp 42	R. G. Speers	Battleford,	Sask.	234
Range 17				
Tps 47 and 48, portions north of Jackfish lake	Thomas Duhaime	Jackfish Lake,	"	232
Range 18				
Tps 45 and 46, portions between Battle and Saskatchewan rivers and Thunderchild's Indian reserve	Alex. Bremner	Bresaylor,	"	233
Range 19				
Tps 45 and 46, portions between Battle and Saskatchewan rivers and Thunderchild's Indian reserve	Alex. Bremner	"	"	233
Range 26				
Tp 11	Moses Elliott	Maple Creek,	Assa.	197
West Fourth Meridian.				
Range 2				
Tp 9 west half	James Robinson	Josephsburg,	Assa.	444
Range 3				
Tp 9 east half	James Robinson	"	"	444
Range 5				
Tp 12	George Jenkins	Dunmore,	"	445
Range 15				
Tp 56	Patrick Boland	Manawan,	Alta.	51
Range 16				
Tp 56	James Hamilton	Whitford,	"	482
57	Jno. Whitford	"	"	471

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Fourth Meridian.			
Range 17			
Tp 52	J. D. McAllister	Beaver Lake, Alta.	403
58	Magnus Cromarty	Pakan, “	487
Range 18			
Tp 50	P. N. Jevning	Northern, “	400
51 west of Beaver lake	Joseph Norn	Tofield, “	401
52 west of Beaver lake	Robt. Logan	Ross Creek, “	404
55	Herbert Culvert	Star, “	446
56	Harry Belcher	Wostok, “	407
Range 19			
Tp 45	Jamieson Crawford	Duhamel, “	476
50	Alex. Kelleney	Logan, “	405
51 west of Beaver lake	Joseph Norn	Tofield, “	401
53	Fred Horsted	Ross Creek, “	406
55	Robert Swan	Star, “	40
56	Ole Dahl	“ “	43
57	Peter Lytowski	“ “	465
Range 20			
Tp 43	A. S. Huolt	Duhamel, “	450
44	Chas. Johnson	“ “	464
45 and 46, south of Battle river and Driedmeat lake	W. E. Crumrine	“ “	328
45 east of Driedmeat lake	Jamieson Crawford	“ “	476
46 balance	Lewis Hartman	“ “	432
55	John Sampart	Fort Saskatchewan,	41
56	Gustav Werner	Bruderheim, Alta.	53
57	Sapat Loposzynski	Star, “	470
Range 21			
Tp 43 east Red Deer lake	A. S. Huolt	Duhamel, “	450
43 west Red Deer lake	A. G. Lindblam	Wetaskiwin, “	430
44	L. J. Waldie	Lewisville, “	457
45 four south tiers of Sections only	Ole Olstad	Duhamel, “	437
45 two north tiers and 46 south of river and including River lots 25 to 48 inclusive	J. E. Bingham	“ “	255
46 north of Battle river and including River lots 1 to 24 inclusive		“ “	436
47	Alois Fetzner	Bittern Lake, “	455
48	John Moe	“ “	433
53	J. H. Heacock	Agricola, “	459
54	Albert Nelson	Beaver Hills, “	20
55	John Berg	Ft. Saskatchewan “	17
Range 22			
Tp 40 and south half of 41	Frank J. Taylor	Lamerton, Alta.	229
43	A. G. Lindblam	Wetaskiwin, “	430
44	John G. Wilcher	Lewisville, “	435
45 west and north of Battle river	Wm. Russell	Wetaskiwin, “	220

List of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Fourth Meridian.			
Range 22—*Con.*			
Tp 45 east and south of Battle river			
46 east of Battle river	Benjamin Schantz	Wetaskiwin, Alta.	77
46 north of Battle river and Pipestone creek	John Dymack	Duhamel, "	237
46 west of Battle river and south of Pipestone creek	Levi Bradshaw	Wetaskiwin, "	59
47	Philip Ames	" "	451
52	T. J. White	Edmonton, "	458
53	T. G. Pearce	Agricola, "	2
54	Joseph Alton	" "	31
55 south and east of river and River lots 1, 3, 5, 7	John Berg	Ft. Saskatchewan "	17
55 north and west of Saskatchewan river and including River lots 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	A. Lamoureaux	Lamoureux, "	222
56	Vital Cousineau	Ft. Saskatchewan "	223
Range 23			
Tp 43	H. Krefting	Wetaskiwin, Alta.	429
44	G. Svenson	" "	431
45 south and east of Battle river	Benjamin Schantz	Lewisville, "	77
45 balance	W. Russell	Wetaskiwin, "	220
46 west Battle river and south Pipestone creek	Levi Bradshaw	" "	59
46 north and east Pipestone creek	J. Dymack	Duhamel, "	237
47 south and west of Coal lake	Julius Dahms	Wetaskiwin, "	228
47 balance	P. Ames	" "	451
50	Bernard Charest	Beaumont, "	485
51	C. Powel	Strathcona, "	48
52	A. J. Stannard	" "	32
53 north and west of river and including River lots 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40 and 42	Wm. A. Wilson	Edmonton, "	68
53 south and east of river and including River lots 25, 27, 29, 31, 33, 35, 37, 39, 43 and 45	William Keith	Clover Bar, "	39
54 north and west of river and including River lots 28 and 30	Thos. White	Horse Hills, "	23
54 south of river and including River lots 9, 11, 13, 15, 17, 19, 21	J. Alton	Agricola, "	31
55	P. Robinson	New Lunnon, "	73
56	Jno. Milligan	" "	230
Range 24			
Tp 41	Wm. Tennison	Urquhart, "	479
43	Robt. Dick	Ponoka, "	491

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Fourth Meridian.				
Range 24—*Con.*				
Tp 45	Fred Stimson	Wetaskiwin,	Alta.	241
46 except village of Wetaskiwin	L. T. Miquelon	“	“	240
47	J. K. Gray	Millett,	“	434
48	R. A. Patrick	“	“	438
49	M. Falkenburg	Leduc,	“	37
50	William Heatley	Beaumont,	“	35
51	F. Werenberg	Ellerslie	“	159
52 including River lots 1, 3, 5, 7, 9, 11, 13, 15, 15a, 17, 19, 21, 23, 23a, and 25a	Wm. Place	Strathcona,	“	47
53 portion north of Saskatchewan river	Wm. A. Wilson	Edmonton,	“	68
53 portion south of Saskatchewan river	Wm. Keith	Clover Bar,	“	39
54	John Kennedy	Edmonton,	“	30
55	C. McLaughlin	Namao,	“	42
56	Jas. Jenkins	New Lunnon,	“	69
57	Damase Demers	Morinville,	“	489
Range 25				
Tp 2 Secs. 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 only.	A. Archibald	Cardston,	“	56
3 portions north of St. Mary's river of Secs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 23 only				
40	E. G. Glanville	Lacombe,	“	236
41	D. Foran	Urquhart,	“	414
42	Jos. Stretch	Ponoka,	“	326
43 except Sec. 4	Robt. Dick	“	“	491
46	Wm. Reivitz	Wetaskiwin,	“	327
47	J. K. Gray	Millett,	“	434
48	Gustav Mattis	Saron,	“	425
49 except village of Leduc	G. Gressell	Leduc,	“	21
50	John H. Jones	“	“	22
51 and fr 52 south of river	James Grove	Strathcona,	“	24
52 fr part north of river				
53 including River lots 50 to 55 inclusive, except the area of the village of St. Albert	Robt. Kirk	Edmonton,	“	45
54 including River lots 16 to 49, 56 to 64, 18a to 26a, all inclusive except the area of the village of St. Albert	Patrick MacFarlan	St. Albert,	“	52
55	D. McDonald	Morinville,	“	235
56	Emile Dubuc	“	“	226
57	Menessippi Massie	“	“	490
Range 26				
Tp 2 Secs. 25, 26, 35, 36 only	A. Archibald	Cardston,	“	56
3 Secs. 1, 12 only				
35	J. S. Sparks	Knee Hill Valley	“	83
36	H. Gulliver	Edwell,	“	325
37	Henry Towers	Red Deer,	“	323
38 portion south of river				

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS		DIST. NO.
West Fourth Meridian.				
Range 26—*Con.*				
Tp 39 portion south of river	S. D. McConnell	Red Deer,	Alta.	278
39 portion north of river	F. Jones	Canyon,	"	460
40 except village of Lacombe	John N. Poole	Lacombe,	"	259
41	A. H. McKay	"	"	408
42 fr	J. Stretch	Ponoka,	"	326
48	Gustav Mattis	Leduc,	"	425
49	A. J. McDonald	"	"	424
50	F. Berthiaume	Strathcona,	"	218
52 fr	S. J. Eccles	Spruce Grove,	"	28
53 south of Sturgeon river and Big Lake	S. C. Hagen	Edmonton,	"	46
53 portion north of Sturgeon river and Big lake, including River lots 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, and A to I all inclusive	Denis Hebert	Villeneuve,	"	55
54 including River lots 5, 6, 7, 8	Denis Hebert	"	"	55
55	A. J. McDougall	Riviere-qui-Barre,		192
56	Jno. Clavevi	"	"	277
Range 27				
Tp 2 east of Belly river	Samuel Webster	Mountain View,	"	58
34	David Nicholls	Innisfail,	"	262
35	Jno. McGhee	"	"	66
36	William Inglis	Penhold,	"	324
37	Horace Cooper	Red Deer,	"	322
38 portions west and north of Red Deer river				
38 portion south of river	S. D. McConnell	"	"	278
39	J. Pennington	Waghorn,	"	467
40	C. A. Giberson	Lacombe,	"	225
41	D. M. Cameron	"	"	468
49	C. J. Blomquist	Calmar,	"	422
50	Olof Melin	"	"	423
52	S. J. Eccles	Spruce Grove,	"	28
53 and fr south ½ 54	S. Witmer	"	"	29
55 and north ½ of fr 54	Onesime Como	Riviere-qui-Barre	"	38
Range 28				
Tp 2 east of Belly river	Samuel Webster	Mountain View,	"	58
19	W. B. Thorne	High River,	"	213
20	Jno. Laycraft	Gladys,	"	409
21 portion south of river	Harold Banister	Davisburg,	"	207
34	Edward Bothamley	Innisfail,	"	221
35 except village of Innisfail	Wm. Champ	"	"	71
36 west of Red Deer river	Geo. Duncan	Tindastoll,	"	81
36 east of Red Deer river	J. P. Quantz	Innisfail,	"	396
37 portion east of Red Deer river	Ebenezer W. Green	"	"	473
37 portion west of Red Deer river	Fred. Merriam	Red Deer,	"	481
38 south of river	S. D. McConnell	"	"	278
38 and 39 portions west and north of Red Deer river				
40	D. A. McIntosh	Lacombe,	"	469
50 fr	Olof Melin	Calmar,	"	423
51 fr	Frank Sieh	Stony Plain,	"	25

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO
West Fourth Meridian.			
Range 28—*Con.*			
Tp 52 fr	J. B. Butchart	Stony Plain, Alta.	26
53	Israel Umbach	Spruce Grove, “	44
54 fr north ½ of	O. Como	Riviere-qui-Barre “	38
54 fr south ½ of	S. Witmer	Spruce Grove, “	29
Range 29			
Tp 5	C. Giberdt	Pincher Creek, “	363
6	C. Kettles	“ “	360
19	S. A. Roberts	High River, “	441
20 except village of Okotoks	Alex. McRae	Okotoks, “	211
21	J. A. Grierson	Grierson, “	214
22	Albert Caseley	Calgary, “	293
23	George Madge	“ “	294
34 fr	Edward Bothamley	Innisfail, “	221
Range 30			
Tp 5	C. Giberdt	Pincher Creek, “	363
6	C. Kettles	“ “	360
West Fifth Meridian.			
Range 1			
Fr 5 and 6	Wm. R. Lees	Pincher Creek, “	361
7 portion north of Middle Fork	H. G. Nash	Livingstone, “	418
8 west half only	H. G. Nash	“ “	418
9 west half only	H. G. Nash	“ “	418
20	W. B. Stitt	Panima, “	275
21	Donald Gray,	“ “	279
23 portion east of river	George Madge	Calgary, “	294
23 portion south Bow river	George Bolt	“ “	273
23 portion north of Elbow river	Charles Jackson	“ “	219
24 portion south of Bow river except village of Rouleauville	Charles Jackson	“ “	219
24 north of Bow river except Secs. 19, 20, 21, 28, 29, 30, 31, 32, 33	D. Robinson	“ “	216
24 Secs. 19, 20, 21, 28, 29, 30, 31, 32, 33 only	E. H. Riley	“ “	390
25 except Sec. 6	D. Robinson	“ “	216
25 Section 6 only	E. H. Riley	“ “	390
31	Theo Reist	Didsbury, “	227
32	Chas. H. Sheldon	Olds, “	12
33	Geo. H. Smith	“ “	13
34	Chas. Moore	Bowden, “	224
35	Jno. Begg	Innisfail, “	67
36 north and west of Red Deer river	Geo. Duncan	Tindastoll, “	81
37	L. Martin	“ “	382
38	Jno. Hawk	Burnt Lake, “	454
40	Daniel Murray	Bentley, “	472
41	Geo. Bentley	Bentley, “	480
51	Frank Sieh	Stony Plain, “	25
52	J. B. Butchart	“ “	26
53	Israel Umbach	Spruce Grove, “	44

LIST of Local Improvement Districts with Description of and Name of Overseer.—*Continued.*

AREA	NAME OF OVERSEER	P. O. ADDRESS	DIST. NO.
West Fifth Meridian.			
Range 2			
Tp 8 Secs. 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36 only 9 Secs. 1, 2, 3, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30 only	H. G. Nash	Livingstone, Alta.	418
7 north of Middle Fork. 8 Secs. 1, 2, 3, 10, 11, 12 only	R. J. Hardy	Gillingham, “	419
22	Joseph Hope	Calgary, “	210
24 and portion of 25 south of Bow River	T. E. Jackson	“ “	209
24 north of Bow river and Secs. 1, 2, 3, 10, 11, 12, in Tp 25	E. H. Riley	“ “	390
31	O. Stauffer	Didsbury, “	387
32	H. L. Briggs	Olds, “	14
33	Geo. Wedge	“ “	15
36 two east tiers of Secs. only	Geo. Duncan	Tindastoll, “	81
37	Th. Gudmundson	“ “	381
Range 3			
Tp 7 Secs. 1, 2, 9, 10, 11, 12, 13, 14, 15, 16, 23, 24, 25, 26, 35, and 36 8 Secs. 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 35 & 36 only	R. J. Hardy	Gillingham, “	419
21	James Aird	Millarville, “	282
22	Geo. Young	Priddis, “	206
24 and part south of river of Tp 25	Jno. Gibson	Springbank, “	212
32	Jos. Doyle	Olds, “	54
33	Thos. Smith	“ “	463
54	Wellington Lee	Lac Ste Anne, “	231
Range 4			
Tp 25 portion north of Bow river and 26	Jas. Hewitt	Cochrane, “	208
54 north half of and part south of Lac Ste Anne of Tp 55	Wellington Lee	Lac Ste Anne, “	231
Range 6			
Tp 26 including River lots 1a to 9 inclusive	F. M. Graham	Morley, “	217
Range 10			
Tp 24	Samuel Stirton	Canmore, “	267

LARGE LOCAL IMPROVEMENT DISTRICTS.

The amount of taxes collected and work completed in Large Local Improvement Districts during last year show a marked increase over the previous year.

The assessment in the districts in operation during the year is given below, and the assessment of the districts during the previous two years is also given for the purpose of reference.

The assessments of large districts for the years 1899, 1900 and 1901 were as follows:

NO.	DISTRICT.	ASSESSMENT.		
		1899	1900	1901
500	Calgary	$3,157.75	$3,044.50	$3,221.58
501	Okotoks	1,026.00	1,053.50	1,053.83
502	High River	1,791.00	1,774.50	2,016.00
503	Pincher Creek	110.00	149.00	1,353.33
504	Macleod	923.50	921.00	3,375.10
505	Cardston	777.00	3,210.75	3,189.81
506	Lethbridge	2,534.11	2,499.06	4,514.76
507	Medicine Hat	1,994.60	2,336.00	2,568.29
508	Maple Creek	3,188.00	3,094.96	3,043.11
509	Swift Current	2,091.00	2,109.00	1,945.00
510	Wetaskiwin East			1,700.00
511	Moose Jaw	2,727.50	2,682.50	2,947.64
512	Saskatoon	2,611.00	2,852.50	2,755.04
513	Battleford	717.00	674.50	689.83
514	New Oxley	4,227.29	4,269.50	1,148.12
515	Good Spirit	262.00	220.00	542.00
517	Sheho	596.80	592.50	707.77
518	Weyburn	2,082.00	2,054.00	2,710.20
519	Wetaskiwin West			784.00
520	Rouleau	....	1,552.00	2,400.80
521	Long Lake	....	2,115.00	2,326.12
522	Touchwood	....	5,737.80	4,460.16
523	Innisfail	....	3,585.00	3,581.89
524	Red Deer	....	1,996.00	2,103.71
525	Moose Mountain	....	1,074.00	1,744.76
526	Estevan	....	2,139.00	2,574.98
527	Antler	....	1,751.00	1,836.21
		$31,896.55	$53,569.57	$61,294.04

The amount of taxes collected during the past year, and the amount expended in completing improvements are shown in the usual schedule form as follows:

NO.	DISTRICT.	TAXES COLLECTED	AMOUNT OF EXPENDITURE.
500	Calgary	$2,804.41	$2,049.20
501	Okotoks	1,130.13	575.70
502	High River	2,590.60	944.75
503	Pincher Creek	251.80	355.90
504	Macleod	2,653.95	593.01
505	Cardston	2,697.90	2,943.71
506	Lethbridge	7,128.04	4,252.52
507	Medicine Hat	2,684.14	1,988.74
508	Maple Creek	2,954.73	1,146.12
509	Swift Current	3,383.80	767.84
510	Wetaskiwin East	881.62	176.52
511	Moose Jaw	4,466.62	466.52
512	Saskatoon	3,940.65	1,369.14
513	Battleford	1,059.74	237.59
514	New Oxley	1,918.69	386.26
515	Good Spirit	576.91	327.96
517	Sheho	1,006.79	317.30
518	Weyburn	3,315.93	557.69
519	Wetaskiwin West	283.16	42.49
520	Rouleau	1,811.36	1,783.18
521	Long Lake	2,066.00	1,557.22
522	Touchwood	4,840.41	891.15
523	Innisfail	1,001.28	631.77
524	Red Deer	1,607.76	952.09
525	Moose Mountain	1,180.27	358.46
526	Estevan	1,902.12	258.39
527	Antler	1,642.67	220.49
		$61,781.48	$26,151.71

Note.—The amount of taxes shown above to have been collected during the year includes payment of taxes assessed during 1899 and 1900.

The larger portion of the taxes collected as shown above were paid too late in the year to permit of the amount being spent in completing necessary work, but these sums are, of course, available to defray the cost of work to be completed this year in addition to such amounts as may be collected from this year's assessment.

The work completed in large districts last year was as follows:

Number of miles of road cleared	41
Number of miles of road graded	155
Number of bridges and culverts repaired	11
Number of dams repaired	2
Number of bridges built	21
Number of culverts built	84
Number of snow fences built	2
Number of wells drilled	16
Number of miles of fireguard ploughed	917

Full details of the expenditure in districts in connection with the completion of the above work will be found in the Public Accounts for the year.

In addition to the large districts scheduled above certain additional districts have been organised which will be assessed for the first time this year, and to provide a graphic illustration of the location and boundaries of districts so far organised, a map is appended. On this map has also been shown, in yellow, the area covered by small districts.

The general provisions of the law with regard to the assessment, collection and expenditure of taxes in large districts are now more generally understood by the people resident in such districts, and those owning land therein, and a much more prompt payment of taxes is being experienced than was the case during the first two years following the organisation of the districts. This result is largely due to the judgment obtained by the Government in all the cases instituted to collect taxes from the companies or individuals who had refused to pay, but is also in a measure attributable to the better knowledge that people now have of the nature of the improvements which we are undertaking in the districts, and the manner of completing the work.

At the last session of the Legislative Assembly the provision originally contained in The Local Improvement Ordinance under which townships might be cut out of large districts and organised as small districts, was repealed. When this was done it was claimed by some persons that an injustice would be done those residents of townships who might wish to organise as small districts in depriving them of the self government which the small district system affords.

The answer to that claim is, of course, based upon the fact that so long as the present provisions for commutation by labour of taxes in small districts remain law, the smaller cash tax of $2.00 on a quarter section in the large districts will produce better and more permanent results in the way of local improvements, and the large districts should, therefore, be maintained intact once they are instituted.

The better results are obtained under the large district system will, it is thought, be realised if careful consideration is given to the following facts:

The large majority of the small districts comprise only a township in extent, and if we exclude the two sections belonging to the school endowment, there are only 34 sections left for assessment, which would produce a revenue of $340 per annum. In this statement it is assumed that all sections, except school sections, pay taxes, which at present is, of course, not the case, the fact being that the average revenue of the small districts does not exceed $200. The expenditure of this $200 each year would, if the work was carefully laid out on a systematic plan and properly performed, probably meet the requirements of the ordinary district; but with the results obtained from commuted labour already referred to, and the patch work method of laying out the work which is so common, very few of the districts succeed in meeting each season's demands for road improvements or in accomplishing much in the way of permanent work.

In a large number of small districts the work most urgently needed is the improvement of the main market road through the district. In one township the work required on such a road may be beyond the capabilities of the township to complete, while in an adjoining township traversed by the same market road the improvements required thereon may be trivial, and yet concentration of the revenues or labour of the two or more townships on the different and expensive improvements required is practically impossible.

In the small districts the average cost of making the assessment, collecting or working out taxes, and making returns, or in other words, the administrative cost, was, during last year, nearly 14 per cent. of the revenues.

Now in the large districts the conditions are very different.

The rate of taxation is lower. The total cost of assessment, collection and expenditure of taxes last year, or the administrative cost, was less than 5 per cent. of the revenue. The work performed is laid out on a defined basis of permanent improvements, and is completed under competent foremen or by contract, and paid for in cash. The necessary work in any part of the district has the revenue from vacant lands in unsettled portions to draw upon for completion of the work, and as a consequence larger works which are for the public benefit generally can be undertaken. The residents of the district who have teams to spare, or who wish to do labour, have an opportunity of doing so, and of being paid in cash for their services, while those who have work enough at home for themselves and teams, pay their $2.00 on a quarter section, knowing that taxes collected are being spent in completing permanent improvements of value to the public generally, instead of being frittered away in letting each settler do half hearted work in making so called improvements in front of his own door.

That the large district system is better than the small is now being recognised by many of the small districts, and during the past year four small districts were, at their own request, disorganised and added to the large districts adjoining them. Several other small districts have asked for information regarding the working of large district system, and are now considering the question of disorganisation so that they may be added to the large districts.

In past Annual Reports, and also in the earlier pages of this report, attention has been directed to the fact that ultimately some form of municipal government will have to be extended to the rural portions of the Territories, but until we get well past the development stage, and conditions are much more settled than can be expected for some years to come, the present provisions of the Local Improvement law with respect to large districts certainly seem to meet all requirements for the completion of the work of local improvements.

COLLECTION OF OVERDUE TAXES.

The work of collecting overdue Local Improvement taxes comprises a large part of the work of the Local Improvement Branch. The system under which such taxes are collected provides for two steps in attempting to collect such taxes.

First: We issue a notice to all persons shown by the annual returns as being in arrears for taxes, pointing out that such arrears are shown by the return, and asking for payment; and

Second: We take proceedings under the provisions of the law to forfeit lands upon which taxes are two years in arrears, and upon confirmation of the application for forfeiture by a judge we pay the taxes on such lands.

In certain special cases suits for the collection of taxes due by large individual land owners or corporations are instituted, but such suits are not now necessary as a general thing, the question of the liability for such taxes having been clearly defined in the judgment given in the suit against the Hudson's Bay Company carried through to the Supreme Court of the Territories by the Attorney General.

The issue of the notices mentioned above as the first step in collection of overdue taxes results in the payment of a very considerable portion of such taxes, and last year we collected in that way and paid to small districts the sum of $4,983.08 in settlement of such taxes, the districts on account of which collections were made being shown in the following statement:

TAXES Collected by Department during 1901 for Small Local Improvement Districts and Forwarded to Overseers.

NO. OF DISTRICT	AMOUNT COLLEC'D	NO. OF DISTRICT	AMOUNT COLLEC'D	NO. OF DISTRICT	AMOUNT COLLEC'D	NO. OF DISTRICT	AMOUNT COLLEC'D
2	$ 15 00	108	$ 27 50	209	7 50	318	10 00
3	52 00	109	155 75	210	2 50	319	5 00
7	8 00	112	7 50	211	30 00	322	7 50
9	204 00	113	10 00	212	7 00	324	5 00
11	118 00	115	7 50	214	17 50	325	12 50
12	2 50	118	30 00	216	80 00	331	15 00
13	7 50	119	8 00	219	23 30	333	32 50
14	8 00	120	7 50	221	7 00	334	30 00
16	58 38	122	7 50	222	9 90	336	2 50
17	25 50	125	11 00	224	20 00	347	17 50
19	2 50	126	45 00	226	7 50	348	15 00
21	8 50	127	6 25	228	4 00	349	7 50
22	7 50	128	10 00	232	2 50	350	2 50
23	141 50	129	9 90	233	25 00	352	90 00
24	16 50	131	32 75	235	38 75	353	37 50
26	2 50	136	57 50	237	7 50	356	32 50
27	4 75	137	25 00	238	5 00	357	15 00
28	64 50	138	10 00	240	31 62	358	2 50
31	10 00	139	45 00	241	7 50	359	5 00
32	5 00	146	10 00	242	10 00	360	10 00
34	25 00	148	20 00	243	47 50	361	5 00
35	94 62	149	32 50	245	30 00	363	2 50
39	58 37	150	2 50	246	65 00	364	20 00
40	12 00	152	2 50	247	7 50	372	15 00
43	2 50	153	25 00	250	5 00	377	20 00
45	95 00	154	52 50	252	11 50	380	5 00
46	5 90	155	22 50	253	19 50	384	167 50
49	7 50	157	12 50	255	7 50	386	2 50
50	6 25	160	5 00	259	5 00	389	20 00
52	43 00	161	7 50	264	26 25	390	33 00
55	19 00	163	5 00	265	20 50	391	19 35
56	7 50	164	7 50	270	10 00	392	10 00
58	2 50	166	5 00	278	20 64	393	6 13
59	32 50	167	42 50	281	10 00	394	20 00
60	21 25	170	20 00	282	60 00	397	7 50
63	5 00	172	2 50	291	5 00	398	17 10
68	48 88	173	10 00	294	27 50	399	5 00
70	49 00	174	5 00	295	42 00	403	5 00
71	83 00	176	5 00	296	5 00	416	5 00
72	30 00	177	5 00	297	15 00	419	5 00
73	41 50	178	5 00	299	22 50	420	5 00
75	5 00	184	27 50	302	2 50	421	9 50
78	20 00	185	35 00	303	34 60	424	5 00
81	83 75	186	62 50	304	15 00	426	15 00
87	5 00	189	2 50	305	15 00	440	5 00
89	20 00	190	16 50	306	7 50	441	42 50
90	10 00	191	25 00	307	20 00	445	12 75
95	63 00	193	49 50	309	53 75	446	2 50
98	37 50	196	92 50	310	10 00	449	7 50
99	32 75	200	7 50	311	25 14	451	2 50
101	14 00	203	10 00	312	5 00	454	5 00
105	32 00	205	15 00	315	7 50	460	2 50
106	54 75	206	10 00	316	17 50	481	2 50
107	35 00	207	32 50	317	20 00	531	10 00

The proceedings mentioned under the second head also result in the payment of a considerable proportion of overdue taxes before application for forfeiture of the land is finally resorted to, and as a result the Department is called upon to pay only a small amount in settlement of taxes on such lands as are finally forfeited.

When the present provisions for collection of overdue taxes in Local Improvement Districts were enacted it was feared by some persons that the enforcement of the law was going to result in the forfeiture of a large number of quarter sections to the Crown and entail a serious liability upon the Government for the payment of taxes That fear should be entirely dispelled by the results following the enforcement of the provisions of the law during the past two years, as will be noted from the following information :

Since the work of collecting overdue taxes by forfeiture of the land was commenced in 1900, one hundred and eighteen (118) parcels of land have been forfeited for nonpayment of taxes. Of that number forty two (42) parcels were redeemed during the year allowed for redemption, and up to date only eleven (11) quarter sections have been finally forfeited to the Crown. The accompanying schedule will serve to indicate the present position of lands forfeited for nonpayment of taxes to date, and in connection therewith it may be noted that before the dates for final forfeiture subsequent to April next, it is probable that the larger number of the parcels of land shown will be redeemed by payment of taxes due, with costs.

SCHEDULE of Lands Forfeited to the Crown for Nonpayment of Local Improvement Taxes.

DIST NO.	LANDS.	DATE OF FORFEITURE	DATE REDEMPTION EXPIRES	REMARKS
71	N. W. ¼ S. 2-35-28w4	Jan. 18, 1901	Jan. 18, 1902	Redeemed.
71	N. W. ¼ S. 12-35-28w4	"	"	Finally forfeited Feb. 19., 1902.
71	Lot 9 Blk. 10, Innisfail	"	"	Redeemed.
71	Lots 3 & 4 Blk. 12, Innisfail	"	"	"
71	Lot 18 Blk. 13, Innisfail	"	"	"
224	N. W. ¼ S. 20-34-1w5	"	"	Finally forfeited Feb. 6, 1902.
21	Lots 11, 12 & 13 Blk. 5, Leduc	Jan. 22, 1901	Jan. 22, 1902	Finally forfeited Feb. 6, 1902.
22	N. W. ¼ S. 12-50-25w4	"	"	Redeemed.
22	N. E. ¼ S. 36-50-25w4	"	"	"
35	N. W. ¼ S. 22-50-24w4	"	"	"
39	S.W. ¼ S. 35-53-23w4	"	"	"
52	S. E. ¼ S. 36-54-25w4	"	"	Finally forfeited Feb. 6. 1902.
59	S. W. ¼ S. 30-46-23w4	"	"	Redeemed.
240	Lot 2 Blk. 6, Wetaskiwin	"	"	"
240	Lot 16, Blk. 7, Wetaskiwin	"	"	"
255	River Lot 40, 46-21w4	"	"	"
57	S. E. ¼ S. 28-19-26w2	Feb. 5, 1901	Feb. 5, 1902	Finally forfeited Feb. 19, 1902.
57	N. E. ¼ S. 32-19-26w2	"	"	Finally forfeited Feb. 19, 1902.
200	N. E. ¼ S. 34-16-27w2	"	"	Finally forfeited Feb. 19, 1902.

SCHEDULE of Lands Forfeited to the Crown for Nonpayment of Local Improvement Taxes.—*Continued.*

DIST NO.	LANDS	DATE OF FORFEITURE	DATE REDEMPTION EXPIRES	REMARKS
205	N. E. ¼ S. 36-17-28w2	Feb. 5, 1901	Feb. 5, 1902	Finally forfeited Feb. 19, 1902.
264	S. W. ¼ S. 14-17-24w2	“	“	Redeemed.
90	N. W. ¼ S. 20-20-20w2	Feb. 8, 1901	Feb. 8, 1902	Finally forfeited Feb. 19, 1902.
90	S. W. ¼ S. 20-20-20w2	“	“	Finally forfeited Feb. 20, 1902.
95	S. W. ¼ S. 28-19-22w2	“	“	Finally forfeited Feb. 19, 1902.
109	All of S. 17-19-20w2	“	“	Redeemed.
196	East ½ S. 32-17-20w2	“	“	“
243	S. E. ¼ S. 19-17-22w2	“	“	“
398	N. W. ¼ S. 18-20-13w2	Feb. 15, 1901	Feb. 15, 1902	
398	S. W. ¼ S. 18-20-13w2	“	“	
141	N. W. ¼ S. 12-4-2w2	April 17, 1901	April 17, 1902	
148	N. W. ¼ S. 10-3-3w2	“	“	
155	N. E. ¼ S. 36-4-3w2	“	“	
157	Lot 10 Blk. D, Carnduff	“	“	
161	West ½ S. 28-1-32w1	“	“	
167	N. E. ¼ S. 14-2-32w1	“	“	
167	N. W. ¼ S. 28-2-32w1	“	“	
185	N. E. ¼ S. 28-1-6w2	“	“	
384	West ½ S. 16-3-4w2	“	“	Redeemed.
384	S. E. ¼ S. 30-3-4w2	“	“	“
384	S. W. ¼ S. 30-3-4w2	“	“	“
384	N. W. ¼ S. 32-3-4w2	“	“	“
384	S. W. ¼ S. 32-3-4w2	“	“	“
384	S. E. ¼ S. 32-3-4w2	“	“	“
384	S. E. ¼ S. 6-4-4w2	“	“	“
64	S. W. ¼ S. 6-20-10w2	April 20, 1901	April 20, 1902	
347	N. E. ¼ S. 24-17-8w2	“	“	
348	S. E. ¼ S. 12-18-8w2	“	“	
351	N. E. ¼ S. 18-16-9w2	“	“	
351	S. E. ¼ S. 18-16-9w2	“	“	
359	S. W. ¼ S. 4-19*a*-10w2	“	“	
78	N. E. ¼ S. 16-21-8w2	April 23, 1901	April 23, 1902	
78	S. W. ¼ S. 30-21-8w2	“	“	
78	Lots 3 & 4 & S. E. ¼ S. 33-21-8w2	“	“	
78	S. W. ¼ S. 22-21-8w2	“	“	
11	N. W. ¼ S. 1-23-3w2	May 25, 1901	May 25, 1902	
11	S. W. ¼ S. 1-23-3w2	“	“	
11	S. E. ¼ S. 4-23-3w2	“	“	
11	N. E. ¼ S. 4-23-3w2	“	“	
11	S. W. ¼ S. 4-23-3w2	“	“	
11	N. E. ¼ S. 6-23-3w2	“	“	
11	S. ½ & N. E. ¼ S. 9-23-3w2	“	“	
11	N. E. ¼ S. 13-23-3w2	“	“	
11	West ½ S. 18-23-3w2	“	“	Redeemed.
11	N. E. ¼ S. 24-23-3w2	“	“	“
11	S. W. ¼ S. 25-23-3w2	“	“	
11	N. ½ & S. W. ¼ S. 35-23-3w2	“	“	S.W. ¼ Redeemed
101	S. E. ¼ S. 24-16-6w2	“	“	
113	N. E. ¼ S. 2-16-2w2	“	“	
113	S. W. ¼ S. 2-16-2w2	“	“	
119	N. W. ¼ S. 34-14-3w2	“	“	
119	N. E. ¼ S. 36-14-3w2	“	“	
129	N. W. ¼ S. 10-15-2w2	“	“	
170	S. W. ¼ S. 16-25-4w2	“	“	
394	S. W. ¼ S. 2-19*a*-3w2	“	“	
120	N. W. ¼ S. 20-16-1w2	May 30, 1901	May 30, 1902	
120	S. E. ¼ S. 20-16-1w2	“	“	Redeemed.

SCHEDULE of Lands Forfeited to the Crown for Nonpayment of Local Improvement Taxes.—*Continued.*

DIST NO.	LANDS	DATE OF FORFEITURE	DATE REDEMPTION EXPIRES	REMARKS
120	S. W. ¼ S. 20-16-1w2	May 30, 1901	May 30, 1902	
120	S. W. ¼ S. 30-16-1w2	“	“	
364	Lots 15 & 16 Blk 47, Broadview	“	“	
364	Lot 3 Blk. 64, Broadview	“	“	Redeemed.
364	Lot 9 Blk. 47, “	“	“	
364	Lot 2 Blk. 38, “	“	“	
364	Lots 1 & 2 Blk. 57, Broadview	“	“	
364	Lot 6 Blk. 76, Broadview	“	“	
364	Lot 5 Blk. 76, “	“	“	
364	Lot 20 Blk. 37, “	“	“	“
136	N. E. ¼ S. 2-21-1w2	June 8, 1901	June 8, 1902	
136	N. E. ¼ S. 14-21-1w2	“	“	
136	N. E. ¼ S. 26-21-1w2	“	“	
24	S. W. ¼ S. 24-52-25w4	Oct. 22, 1901	Oct. 22, 1902	
28	E. ½ of S. W. ¼ S. 14-52-27w4	“	“	
69	N. W. ¼ S. 6-56-24w4	“	“	
235	N. W. ¼ S. 28-55-25w4	“	“	
23	N. E. ¼ S. 4-54-23w4	Oct. 23, 1901	Oct. 23, 1902	
21	Lot 4 Blk. 3 Tp. 49-25w4, Leduc	Oct. 24, 1901	Oct. 24, 1902	
21	Lot 5 Blk. 4 Tp. 49-25w4, Leduc	“	“	
228	S. E. ¼ S. 2-47-23w4	“	“	
228	E ½ of S. E. ¼ S. 16-47-23w4	“	“	
240	N. W. ¼ S. 22-46-24w4	“	“	
241	N. E. ¼ S. 14-45-24w4	“	“	
255	S. W. ¼ S. 2-46-21w4	“	“	Redeemed.
13	N. E. ¼ S. 4-23-1w5	Oct. 25, 1901	Oct. 25, 1902	“
14	All of S. 1-32-2w5	“	“	
81	S. ½ of N. E. ¼ S. 12-36-1w5	“	“	“
262	N. E. ¼ S. 28-34-27w4	“	“	
278	N. W. ¼ S. 2-38-27w4	“	“	“
324	N. W. ¼ S. 18-36-27w4	“	“	
325	N. E. ¼ S. 30-36-26w4	“	“	
206	S. W. ¼ S. 2-22-3w5	Oct. 28, 1901	Oct. 28, 1902	
206	S. E. ¼ S. 2-22-3w5	“	“	
206	N. E. ¼ S. 32-22-3w5	“	“	
294	Part E. of Bow River of the S. E. ¼ S. 12-23-1w5	“	“	
294	S. E. ¼ S. 36-23-1w5, except C.P.R. right of way	“	“	
390	N. W. ¼ S. 30-24-1w5	“	“	
500	S. W. ¼ S. 36-27-4w5	“	“	
500	N. E. ¼ S. 12-26-1w5	“	“	
500	N. W. ¼ S. 28-26-5w5	“	“	
500	E. ½ of N. W. ¼ S. 4-25-29w4	“	“	
500	N. E. ¼ S. 26-24-28w4	“	“	
500	West ½ S. 34-24-4w5	“	“	
500	N. E. ¼ S. 26-24-4w5	“	“	
500	West ½ S. 20-24-4w5	“	“	
500	North ½ S. 10-24-4w5	“	“	
500	S. E. ¼ S. 14-23-24w4	“	“	
500	All of S. 4-23-27w4	“	“	
500	All of S. 9-23-27w4	“	“	
500	All of S. 10-23-27w4	“	“	
500	All of S. 14-23-27w4	“	“	
500	All of S. 15-23-27w4	“	“	
500	N. E. ¼ S. 16-23-27w4	“	“	
211	N. E. ¼ S. 34-20-29w4	Oct. 29, 1901	Oct. 29, 1902	
211	S. W. ¼ S. 34-20-29w4	“	“	
441	N. W. ¼ S. 36-19-29w4	“	“	
501	N. E. ¼ S. 34-20-2w5	“	“	
501	N. W. ¼ S. 25-20-4w5	“	“	

SCHEDULE of Lands Forfeited to the Crown for Nonpayment of Local Improvement Taxes.—*Continued.*

DIST NO.	LANDS	DATE OF FORFEITURE	DATE REDEMPTION EXPIRES	REMARKS
501	N. W. ¼ S. 28-21-25w4	Oct. 29, 1901	Oct. 29, 1902	
501	N. E. ¼ S. 23-21-26w4	"	"	
501	S. E. ¼ S. 18-21-27w4	"	"	
501	S. E. ¼ S. 20-21-27w4	"	"	
501	S. W. ¼ S. 10-21-2w5	"	"	
501	N. W. ¼ S. 6-22-1w5	"	"	
501	S. E. ¼ S. 9-22-1w5	"	"	
501	N. E. ¼ S. 10-22-1w5	"	"	
501	S. E. ¼ S. 10-22-1w5, except C. & E. Co's R. of Way	"	"	
501	East ½ S. 12-22-1w5	"	"	
501	S. W. ¼ S. 13-22-1w5	"	"	
501	West ½ S. 14-22-1w5, except C. & E. Co's R. of Way	"	"	
501	N. W. ¼ S. 15-22-1w5	"	"	
501	S. E. ¼ S. 19-22-1w5	"	"	
501	N. E. ¼ S. 21-22-1w5	"	"	
501	All of S. 23-22-1w5	"	"	
501	Portion N. & W. of Bow River of the North ½ S. 24-22-1w5	"	"	
501	S. E. ¼ S. 30-22-1w5	"	"	
501	S. E. ¼ S. 32-22-1w5	"	"	
502	S. E. ¼ S. 26-19-3w5	"	"	
502	South ½ and Lots 9, 10, 11, and 12 and S. ½ of Lots 13, 14, 15 and 16, S. 25-18-29w4	"	"	
34	N. E. ¼ S. 14-18-25w2	Nov. 1, 1901	Nov. 1, 1902	
36	S. E. ¼ S. 4-17-27w2	"	"	
204	S. W. ¼ S. 28-18-24w2	"	"	
511	N. E. ¼ S. 24-15-26w2	"	"	
511	S. E. ¼ S. 20-16-26w2	"	"	
511	S. E. ¼ S. 5-20-26w2	"	"	
508	N. E. ¼ S. 32-9-29w3	Nov. 5, 1901	Nov. 5, 1902	
508	N. E. ¼ S. 34-10-27w3	"	"	
508	S. W. ¼ S. 32-9-29w3	"	"	
445	S. E. ¼ S. 22-12-5w4	Nov. 7, 1901	Nov. 7, 1902	
445	N. W. ¼ S. 24-12-5w4	"	"	
507	S. E. ¼ S. 4-11-7w4	"	"	Redeemed.
507	S. W. ¼ S. 4-11-7w4	"	"	"
49	N. W. ¼ S. 28-19-18w2	Nov. 11, 1901	Nov. 11, 1902	
50	S. E. ¼ S. 2-19-17w2	"	"	
50	S. W. ¼ S. 1-19-17w2	"	"	
107	S. E. ¼ S. 28-18-19w2	"	"	"
110	N. E. ¼ S. 10-21-19w2	"	"	
122	S. E. ¼ 2-18-18w2	"	"	
193	N. E. ¼ S. 30-16-20w2	"	"	
196	N. ½ of S. W. ¼ S. 10-17-20w2	"	"	
196	N. W. ¼ S. 20-17-20w2	"	"	
360	Lots 67 and 68 Morden Avenue, Pincher Creek, Tp. 6-30w4	Nov. 18, 1901	Nov. 18, 1902	
27	N. E. ¼ S. 32-20-12w2	Nov. 22, 1901	Nov. 22, 1902	
398	N. E. ¼ S. 34-20-13w2	"	"	
426	S. E. ¼ S. 23-21-13w2	"	"	"
60	N. W. ¼ S. 6-18-7w2	Dec. 11, 1901	Dec. 11, 1902	
352	S. W. ¼ S. 10-17-9w2	"	"	"
18	N. W. ¼ S. 20-11-32w1	Dec. 13, 1901	Dec. 13, 1902	
130	S. E. ¼ S. 36-12-1w2	"	"	
163	N. W. ¼ S. 34-11-30w1	"	"	
172	N. W. ¼ S. 22-10-30w1	"	"	
175	S. W. ¼ S. 2-11-31w1	"	"	
191	N. W. ¼ S. 2-12-32w1	"	"	

SCHEDULE of Lands Forfeited to the Crown for Nonpayment of Local Improvement Taxes—*Continued.*

DIST NO.	LANDS	DATE OF FORFEITURE	DATE REDEMPTION EXPIRES	REMARKS
299	N. W. ¼ S. 18-15-30w1	Dec. 13, 1901	Dec. 13, 1092	
299	N. W. ¼ S. 10-15-30w1..........	"	"	
299	S. W. ¼ S. 10-15-30w1..........	"	"	
304	West ½ S. 17-14-31w1....	"	"	
307	S. W. ¼ S. 34-17-31w1..........	"	"	
309	S. E. ¼ S. 21-13-32w1....	"	"	
309	S. W. ¼ S. 2-13-32w1...........	"	"	Redeemed.
320	S. W. ¼ S. 24-17-33w1..........	"	"	
448	N. W. ¼ S. 24-19-32w1..........	"	"	
99	N. W. ¼ S. 34-20-1w2...........	"	"	
113	S. E. ¼ S. 4-16-2w2.............	"	"	
113	S. W. ¼ S. 14-16-2w2...	"	"	Redeemed.
119	N. W. ¼ S. 3-14-3w2............	"	"	
145	N. W. ¼ S. 14-3-2w2............	Dec. 17, 1901	Dec. 17, 1902	
149	S. W. ¼ S. 14-2-34w1......	"	"	
156	N. E. ¼ S. 24-2-30w1...........	"	"	
176	N. W. ¼ S. 4-1-1w2....	"	"	
182	N. ½ of N. W. ¼ 22-4-33w1......	"	"	
384	N. W. ¼ S. 20-3-4w2............	"	"	
178	S. E. ¼ S. 12-9-2w2............	Dec. 18, 1901	Dec. 18, 1902	
178	N. W. ¼ S. 36-9-2w2............	"	"	
178	N. W. ¼ S. 19-8-2w2.......... .	"	"	
184	N. W. ¼ S. 20-9-1w2............	"	"	
184	S. E. ¼ S. 30-9-1w2	"	"	
186	S. E. ¼ S. 10-8-3w2..	"	"	Redeemed.
186	N. E. ¼ S. 12-8-3w2............	"	"	
186	S. E. ¼ S. 36-8-3w2............	"	"	
250	S. E. ¼ S. 33-7-3w2............	"	"	

In connection with the foregoing schedule and remarks regarding the collection of overdue Local Improvement taxes it may be of interest to again quote the remarks contained in last year's report regarding the advantages which are claimed for our system over the system followed in the older Provinces of the Dominion :

"1. It relieves the Local Improvement Districts of all the trouble connected with the collection of overdue taxes, and makes them perfectly certain of the full amount of their revenue at a certain date.

"2. It does away with all the cumbersome machinery for holding tax sales of lands in arrears of taxes.

"3. It obviates all the many difficulties which arise regarding the title of land purchased at tax sales.

"4. It prevents the speculation in land which results from the system of selling land for taxes.

"5. It returns to the Crown the lands originally obtained from the Crown, the owners of which have neglected to bear their just share of local taxation.

"6. It enables the Government, rather than a private individual, to obtain any profit which may result from the ultimate sale of these lands, and to devote such profit to the needs of Local Improvement Districts, whereas under the old system any profit realised from the sale of such lands would go into the pocket of the private individual."

It has already been pointed out that so far only 11 quarter sections of the 118 parcels of land scheduled above have been finally forfeited to the Crown, and that of the remainder only a small proportion are likely to remain unredeemed at the end of the year allowed for redemption and then become finally forfeited.

It is evident, however, that a small number of quarter sections will each year become the property of the Government, and the question of the system which is to be followed in disposing of such lands now requires consideration.

It is assumed that in disposing of these lands it is not desired to make them revenue producing, but rather to sell at such a figure as will return the taxes and costs which have been paid in connection with their acquirement, and, if possible, to have them purchased by persons who will become settlers, rather than to have them acquired by parties for speculation. To accomplish that end, however, presents some difficulties. If the lands are sold at $1.00 per acre they will, of course, realise a sum much in excess of what they have cost the Government, but if offered at that price they are almost certain to be purchased speculatively.

On the other hand, to make a sale of these lands at a low figure, with settlement conditions, will lead to the many difficulties resulting from conditional sales of that kind, and sooner or later result in trouble and dissatisfaction.

The system which should be productive of the most satisfactory results would be to offer the lands in each separate district for sale to the highest bidder, these offers being secured in the shape of tenders up to a certain date after care had been taken to give the residents of the district due notice of receipt of such tenders, so that actual residents desiring to obtain the land, and who should be in a position to pay a better price therefor than the speculator, should have full opportunity to submit a bid.

COLLECTION OF OVERDUE TAXES IN RURAL SCHOOL DISTRICTS.

At the last session of the Legislative Assembly provision was made for the collection of overdue taxes in Rural School Districts under the same system as is in force in Local Improvement Districts, and the administration of the law delegated to this Department, the object being to deal with the school taxes in conjunction with local improvement taxes, so as to save expense and work in the applications to the judge for forefeiture of lands upon which taxes were unpaid. This new branch of work was undertaken by the Local Improvement Branch in the latter part of last year, the School Assessment Ordinance having provided that the first return under the law should be made in the first fifteen days of January last. This branch of work entailed correspondence with 585 Rural School Districts, including the preparation of forms for the returns required, and circular letters of instruction regarding the manner of preparing such returns.

The law relating to forfeiture of land for nonpayment of school taxes will only apply to lands upon which taxes are two years in arrears after the first of January last, the onus of collecting outstanding taxes up to that date being left to the school districts. It will, therefore, be possible in the administration of this law to make a direct and conclusive comparison between the old method of collecting overdue school taxes and the new method adopted from our Local Improvement Ordinance which will apply to the collection of taxes allowed to get into arrears after this date.

It is, of course, claimed that the special advantages quoted above from last year's report, for our system of collecting outstanding taxes in Local Improvement Districts, apply with equal force to Rural School Districts, and as a basis for the comparision of results obtained under the old and new systems which will be made after we have collected taxes under the latter, it may be now pointed out that the returns so far received from 452 Rural School Districts show that at the date of the return the large sum of $60,930 was due the districts for unpaid taxes. There we have a definite showing regarding conditions resulting from the "tax sale" method of collecting taxes, and for purposes of present comparison with what may be expected from the new method it may be noted that the total amount of taxes outstanding in practically the same number of small Local Improvement Districts on January 1st last was $12,576.

The foregoing figures, of course, hardly make a fair comparison between the two systems, because some of the school districts were organised before the Local Improvement law came into force, and a greater number of years of assessment are included in their returns. The figures, however, are sufficient as a basis for the marked illustration of difference of results which may be looked for from the two systems after overdue school taxes have been collected for one or two years under the new method.

VILLAGES.

Nine new villages were organised last year, making a total of thirty-nine villages now organised and administered under The Village Ordinance.

The towns of Red Deer and Cardston, included in last year's list of villages, were granted municipal powers at the last session of the Legislative Assembly.

Several of the present villages have now outgrown the village stage and are taking steps to advance to town dignity, and in that connection it may be pointed out that the introduction of the compulsory provision of The Village Ordinance in 1900 has materially assisted the villages organised under that provision, which have since become towns, because it has provided the groundwork of municipal self government required at these points, and has indicated to the residents the advantages of organisation and municipal improvements. The Village Ordinance has also provided the necessary machinery for dealing with the question of census and vote regarding town incorporation.

The large increase last year in the number of organised villages is a further indication of the rapid extension of settlement which is taking place in the Territories. Of the nine villages organised during the year, eight are the outgrowth of and now form the market centres for thickly settled districts which had practically no existence two years ago.

The Village Ordinance, as amended at the last session of the Legislative Assembly, provides for the collection of overdue taxes through the

Department, under the same system as that in force in Local Improvement Districts. To permit of that being done the proper forms for the returns required by the Ordinance were sent to each Village Overseer, and steps will now be taken to have these returns confirmed by the judge, so that overdue taxes may be collected. The returns so far received indicate that there is not a large amount of taxes outstanding in organised districts; but as the assessment in villages is low and they require all their revenue to meet necessary expenditure it is important that all arrears should be promptly collected.

The usual schedule of organised villages is appended.

VILLAGES.

NAME OF VILLAGE.	NAME OF OVERSEER.	DATE OF ORGANISATION.
Alameda	William Murray	29th December, 1898.
Arcola	Samuel McGurk	11th April, 1901.
Battleford	George Donovan	31st December, 1898.
Blairmore	W. A. Beebe	3rd September, 1901.
Broadview	Angus McLeod	29th December, 1898.
Carnduff	John H. Taylor	28th March, 1899.
Duck Lake	William Fawcett	29th December, 1898.
Didsbury	Cornelius Hiebert	24th September, 1901.
Estevan	Henry Yardley	30th October, 1899.
Fleming	E. McConnell	23rd July, 1896.
Fort Saskatchewan	James Graham	1st March, 1899.
Frank	S. W. Gebo	3rd September, 1901.
Gainsboro	Thomas Fraser	17th June, 1894.
Grenfell	Reginald Gwynne	25th April, 1894.
Gleichen	Emiel Griesbach	24th January, 1899.
High River	Walter Wake	5th December, 1901.
Innisfail	August Kremer	14th December, 1899.
Lacombe	Isaac N. Burdick	12th August, 1896.
Lumsden	Andrew Blair	29th December, 1898.
Leduc	David Wade	13th December, 1899.
Magrath	Jasper J. Head	20th August, 1901.
Maple Creek	David Kearns	9th May, 1896.
Morinville	Omer Gouin	24th August, 1901.
Olds	W. J. Brumpton	8th June, 1896.
Okotoks	Alex. McRae	24th October, 1899.
Oxbow	John B. McKenzie	7th March, 1899.
Pincher Creek	A. R. Dempster	7th September, 1898.
Ponoka	W. R. Courtright	22nd October, 1900.
Qu'Appelle	W. M. Thomson	4th July, 1898.
Rouleauville	James L. Riddell	30th October, 1899.
Rosthern	Alexander D. McIntyre	29th December, 1899.
Saltcoats	W. B. Smithett	16th April, 1894.
Stirling	Jesse W. Hardy	3rd September, 1901.
Stafford	Thomas Foster	22nd October, 1900.
St. Albert	A. C. Hebert	7th December, 1899.
Saskatoon	D. W. Garrison	16th November, 1901.
Wetaskiwin	Eugene Chandler	4th December, 1899.
Wapella	Donald McDonald	29th December, 1898.
Weyburn	Alexander Mitchell	22nd October, 1900.

INFORMATION REGARDING OVERDUE TAXES.

Under the provisions of the Local Improvement, School Assessment. Village and Irrigation Districts Ordinances the Department is the office of record for overdue and unpaid taxes in such districts or villages, and a large portion of our clerks' time in the Local Improvement Branch is taken up in making searches and issuing certificates regarding the taxes on lands in these districts and villages. A large number of the legal firms in Manitoba and the Territories, and loan companies, or others dealing with lands, now send direct to the Department for information relating to outstanding taxes on lands and report that they find it a great convenience to be able to obtain this information promptly from one central office instead of having to write to Overseers or Treasurers of School Districts all over the country. As the work connected with the issue of certificates of outstanding taxes takes time and involves searches through records and returns covering many thousand parcels of land, Departmental regulations have been approved imposing a fee of 25 cents for the issue of such certificates.

IRRIGATION BRANCH.

Staff	Assistant chief engineer. Assistant engineer. 1 survey assistant. 1 draughtsman. 1 stenographer and typewriter.

The southern and south-western portions, in common with the other portions of the Territories, experienced an unusual rainfall during the past two seasons and as a consequence irrigation was not necessary to the same extent that it is during the dry seasons which are usual in that part of the country.

The correspondence and administrative work of the Irrigation Branch during the past year, however, shows an increase over the previous year, and is an indication of the interest in the subject of irrigation which is very noticeable all over the south and west. The work of the branch is scheduled in usual form for reference:

Number of letters received	1,611
Number of letters sent out	1,781
Number of forms and circulars prepared and mailed	3,550
Number of applications for water rights with necessary memorials, plans and notices received, examined and recorded (in duplicate)	25
Number of licences received and recorded (in duplicate)	28
Number of transfers and agreements for use of water received and recorded (in duplicate)	73
Number of licences of occupation for right of way for irrigation works over Crown lands received and recorded	32
Number of returns, etc., received, recorded and placed on file respecting hydrographic records	1,205

Irrigation and its possibilities are but little understood by the residents of the humid portions of the Territories, and were, in fact, looked upon with doubt and suspicion by many residents of the arid portion for some years after the first experiments of applying water artificially to growing crops were undertaken. The experimental stage has now, however, been passed and all doubt removed regarding the results to be obtained, and in consequence irrigation ditches and canals are rapidly increasing in number and the area of land reclaimed thereby extended to wide limits.

The present standing of irrigation canal and ditch construction in the Territories may be summarised as follows:

Number of canals and ditches constructed.....	169
Length of constructed canals and ditches	469 miles
Number of water rights recorded for canals and ditches not yet completed..............	14
Number of acres susceptible of irrigation from constructed canals and ditches...........	614,684
Number of water rights recorded for domestic, power and other purposes	127

The large majority of the ditches mentioned above are small undertakings constructed by individual owners, or as partnership works, and supply water only for lands of the ditch owners. These small ditches were of course the pioneers in irrigation development and experiment, and have in numerous cases rendered valuable ranches and farms along the different streams from which the water is taken which, before irrigation was resorted to, were practically worthless as far as raising any crops was concerned.

Several of our larger canals are works of considerable magnitude designed to supply water for the irrigation of large areas, and are having a marked effect upon the settlement and development of the districts within which they are located. Among the latter may be mentioned the canals of the Canadian North-West Irrigation Company, the Calgary Irrigation Company, the Springbank Irrigation District, the New Oxley Ranche Company's ditch, the ditch belonging to Mr. R. A. Wallace at High River, the Findlay & McDougall ditch in the same district and several others.

The use of water for irrigation, unless controlled by well framed laws carefully administered, is certain to be followed by many disputes and much litigation, and the questions and administration of the law under which water is used for that purpose in the Territories may be of interest to those who now own irrigation works or contemplate investment in irrigation undertakings. The following quotation regarding the Irrigation Laws of Canada is taken from an article on this subject written by request last year for the Irrigation Branch of the United States Department of Agriculture, and published by them as a special bulletin:

WATER Rights Under the Canadian North-West Irrigation Act.

Although the principle of the artificial use of water for irrigation on this continent is much older than the laws relating to land titles, the want of permanency of title to the water used in this way has been one of the greatest drawbacks to modern irrigation development.

There has not been, in the earlier stages of western development, much difficulty in convincing legislative bodies of the necessity for the enactment of such laws as would confer undisputed title upon the owner of a farm, but the wisdom of giving that owner an equally good title to the water for irrigation, without which his farm if situated in the arid or semi arid portion of the continent is useless, has not been so readily recognised.

In Canada the necessity for legislation regarding the important subject of the use of water for irrigation has only become apparent during the past few years, and may in fact be said to date from the time, within the past decade, when the earlier settlers in the southern and south-western portions of the North-West Territories had by painful experience proved that farming without the aid of irrigation was a precarious undertaking.

Fortunately, however, the necessary legislation followed almost immediately upon the footsteps of crop failures and there was practically a clear field as far as vested rights were concerned for the introduction of laws upon the subject of water rights. This fact has had much to do with the success, and absence of litigation so far attending the administration of the Canadian Irrigation law.

The Canadian law relating to the use of water for irrigation is contained in two enactments, viz.: "The North-West Irrigation Act," and "The Irrigation District Ordinance."

The first mentioned, or parent law, is an Act first passed by the Dominion Parliament in 1894, and subsequently amended and consolidated, while The Irrigation District Ordinance is an enactment of the Territorial Legislature authorising the formation of "Irrigation Districts" who after acquiring a water right under the Irrigation Act are empowered to construct the works for the utilization of such water as a municipal undertaking.

For convenience and continuity of narrative these laws are discussed separately in the order given.

Prior to the passage of the North-West Irrigation Act there was in Canada no law, except a provincial enactment in British Columbia, which dealt with the diversion of water from its natural channels for use in irrigation, and in framing such a law it was realised that many principles differing materially from common and existing statutory law must be adopted. The method followed in framing the law has had much to do with its successful administration. The Act was first drafted to embody such of the principles contained in the irrigation laws of the different irrigable States and Territories of the United States, and legislation upon this subject in other colonies of the British Empire, as seemed applicable to local conditions in Canada, and was then submitted during the two months trip of the writer through all the irrigation States, to recognised authorities upon local irrigation laws, for criticism. The information thus obtained disclosed weak points and unforeseen conditions in the original draft, and enabled many valuable amendments to be made before the Act was finally submitted to Parliament for consideration. Two years administration of the Act indicated further desirable amendments to simplify and extend some of its provisions, and the Act was therefore consolidated and amended in 1898.

The Canadian North-West Irrigation Act is based upon certain definite principles which may be briefly stated as follows:

1. That the water in all streams, lakes, ponds, springs or other sources, is the property of the Crown.
2. That this water may be obtained by companies or individuals for certain described uses upon compliance with the provisions of the law.
3. That the uses for which water may be so acquired are "domestic," "irrigation" and "other" purposes, domestic purposes being limited to household and sanitary purposes, the watering of stock, and operation of railways and factories by steam, but not the sale or barter of water for such purposes.
4. That the company or individual acquiring water for irrigation or other purposes shall be given a clear and indisputable title to such water.
5. That holders of water rights shall have the protection and assistance of permanent Government officials in the exercise of such rights.
6. That disputes or complaints regarding the diversion or use of water shall be referred to and settled by the officials of the Government Department charged with the administration of the Act, and that decisions so given shall be final and without appeal.

Probably the most satisfactory way to make it clear how the above principles are worked out in practice will be to deal in detail with a specific case, and then to explain the general provisions of the Act as they bear upon this case.

We will, therefore, consider the case of a company formed to construct an irrigation ditch or canal for the reclamation of any area, and trace the undertaking from its inception to completion, so as to illustrate in a practical way the provisions of the law as affecting such undertakings, and it may incidentally be noted that such an explanation will cover practically all cases dealt with under the Act, the proceedings differing only in minor details for large or small undertakings.

The company having been formed, either under a special act of incorporation or by letters patent under the Joint Stock Companies laws, for the purpose of constructing irrigation works and engaging in the sale of land with water attached thereto for irrigation, or possibly simply to supply water to the present owners of the lands to be irrigated, proceeds to make the necessary surveys to determine the feasibility and approximate cost of their undertaking, and provide the necessary information as to location and character of the works to be constructed and land to be irrigated.

In this connection it may be pointed out that the general irrigation surveys performed by the Government and the maps issued to illustrate these surveys serve in a general sense to show whether any specified area of land can be irrigated from a given source, and the company is only called upon to make the actual ditch or canal location required to permit of details of cost, etc., to be figured upon.

In making their surveys the engineers employed by the company have necessarily to trespass upon lands which do not belong to the company, and to give them a legal right to do this, the company file with the chief engineer of the Department of Public Works for the Territories a general description of their proposed undertaking, and upon payment of a fee of $3.00 obtain a licence authorising their engineers to enter upon all public or private lands for the purpose of making necessary surveys connected with the proposed undertaking.

Having completed their surveys and finally elaborated their scheme, the company proceeds to the next step by filing with the Commissioner of Public Works for the Territories a memorial together with certain illustrating plans and profiles, containing full information as to the organisation and financial standing of the company, the location, character and cost of their proposed undertaking, the location and character of the land to be irrigated, and the terms and price to be charged for water supplied for the irrigation of such land. The application is duly examined and recorded in the chief engineer's office against the stream or other source from which the water is to be diverted, provided there is water available for appropriation, but if the records show that the supply available from the proposed source is already granted, or if the examination proves the scheme does not comply with the provisions of the law the application is refused and applicants notified accordingly,—if approved, one copy of the memorial and plans is filled in the Department of the Interior at Ottawa, and the applicants instructed to publish the notice of their application. The company then give public notice of their having filed the memorial and plans by publication of a notice in five weekly issues of a local newspaper named by the commissioner and file a copy of each issue of the paper containing the notice in the chief engineer's office.

If at the expiration of the publication of the notice referred to no protest against granting the application is received, the chief engineer issues a certificate that the provisions of the law relating to the publication of the notice of application having been complied with, and at the same time makes a recommendation regarding the issue of an authorisation for construction of the proposed works to the company and the length of time to be given them to complete the undertaking.

The authorisation issued to the company empowers them to proceed with the construction of the proposed works, and, if necessary, to expropriate private or public lands required therefor, the time within which such works are to be completed being set forth therein.

Should any protest against granting the application have been filed during the period of publication of the notice, the protest is considered and ruled upon, and any changes or amendments ordered are endorsed on the memorial and plans.

Having obtained their authorisation the company proceed with the construction of their works, subject to inspection of the chief engineer during progress, and to special inspection at any time should complaint be made that the work is not being carried out in accordance with the law and plan and memorial filed.

Upon completion of the construction of the works connected with the undertaking, or the expiry of the time limit and any extension thereof which may have been granted a final inspection is made by the chief engineer, who issues a certificate containing a recommendation for the granting of a final licence covering the water granted, and this licence, upon payment of a fee of $10.00, is issued and duly registered or recorded in the Irrigation Branch of the Department of Public Works against the source from which water is granted. The number which the licence bears shows its priority of right against the source and the certified copy given the company is *prima facie* evidence of their title to the water therein granted in exactly the same manner as a patent or registered deed would be evidence of the ownership of the land or other property conveyed thereby.

The foregoing will serve to indicate in a general way the method of acquiring water rights under the Canadian North-West Irrigation Act. It is now proposed to discuss in a somewhat fuller and more comprehensive manner the provisions of this law in their bearing upon these rights and their use after acquirement.

It may be pointed out in the first place that the law recognises the foundation principle that only by an absolute repeal of the common law of riparian right can the use of water for irrigation be successfully introduced, and having enunciated the principle that all water is the property of the Crown, provision is then made for transfer of the title to this water from the Crown to the company or individual desiring to put it to certain uses defined by the law through a well considered and carefully administered system of registration.

To make the record of rights complete and to prevent disputes regarding vested rights at the time of the introduction of the law provision was made therein that all rights of a kind similar to those which can be acquired under the

Act were required to be registered before a specified date, and the wisdom of this provision will be recognised when it is remembered that only by having a complete record of the rights to water can it be hoped to deal intelligently with the supply from such source.

The provisions of the law relating to the form of application to be filed and the information to be given by the maps and plans accompanying the application are worthy of brief reference.

It will be noticed that the memorial, maps and plans are required to contain full information not only as to the location and character of the works to be constructed, the lands to be irrigated by the water applied for, the character and value of the land to be reclaimed, the price to be charged for water supplied, etc., but also with reference to the financial standing of the applicants.

This full information enables the application to be criticised not only from an engineering standpoint, but also as a business venture, before being approved, and should do much to prevent the introduction of "wild cat" or "boom" irrigation enterprises.

It was recognised in the earliest stages of the administration of the law that the first duty of the Government was to endeavour by a careful system of topographical and hydrographical investigations to determine the actual supply of water available from each source, and to accomplish this the Canadian irrigation surveys were inaugurated and carried on systematically each year. One of the main features of the work undertaken is to endeavour to determine by careful measurements and gaugings the actual supply of water available from each stream or other source for irrigation so as to know what there is to grant and by limiting the records against any source to the available supply prevent the possibility of waste of money resulting from the construction of canals and ditches for which the owners cannot hope to obtain water without they take what rightly belongs to someone else.

This phase of the administration of the law is dealt with somewhat as follows:

Each stream, or in fact any source from which water may be diverted, is given a place in a register containing as it were, a debit and credit account for water, the credit side being filled up from measurements and gaugings of the supply at low water, high water, and flood discharge, and the debit side being a charge against this supply of rights to such water required under the Act. A glance at this register at any time shows the exact balance between available supply and recorded rights, and permits of immediate settlement of the question of whether there is water available to meet the requirements of each application as it is filed for approval.

This system practically delegates to the officials administering the Act the power to prevent the probability of future disputes between the holders of water rights by refusing to approve any application which it is considered might tax any source of supply beyond its capabilities, and thus cause friction between recorded rights, and although this method of dealing with the subject may seem drastic it is held to be reasonable that the Crown should not undertake to dispose of more water than it can deliver, and it will, I think, be admitted that the introduction of this system in the earlier days of irrigation development will tend to prevent waste of money in endeavouring to enforce or protect fictitious water rights by long drawn out legal contests.

The provisions of the law regarding public notice of the filing of applications for water rights and for the consideration and summary disposal by the Minister of protests filed, have resulted in clearing many undertakings in their inception of objections and disputes, which if left for settlement until later on would certainly have resulted in much annoyance, and in some cases, serious inconvenience in the way of law suits.

A fruitful cause of trouble with all undertakings necessitating the taking of land for the purposes of right of way, is the question of the area to be taken and the price to be paid therefor.

Under the Canadian Irrigation law the possession of an authorisation puts the holder in a position to expropriate the land necessary for right of way, and makes the ruling of the Minister final as to the area necessary, the question only of the price being settled by arbitration. These provisions also are designed to prevent the ever present lawsuit.

Having referred to the provisions of the law affecting the project during its inception and progress, we may pass to a consideration of the provisions bearing upon the title to the water obtained upon completion of the undertaking.

The document conveying this title is termed a licence and would perhaps be better designated as a "water patent," but while it conveys an absolute title from the Crown it differs from the ordinary land patent in the material sense of being subject to cancellation for failure to comply with certain conditions of the law after its issue, while the land patent is subject only to cancellation for cause precedent to its issue. The term "licence" was therefore thought the better one, and a consideration of its wording will demonstrate that the title conveyed is good and the limitations thereto wise.

It will be noticed in the first place that the licence purports to transfer a definite quantity of water for the irrigation of a defined area, but that the transferee, to maintain his title, must live up to the provisions of the law. These three points are worthy of separate notice.

The definite quantity of water conveyed settles at once the question of the limits of the right, and no loophole is left for advancing a claim that the right is defined by size of canal or ditch, or area of land to be irrigated. The stage at which water is granted is also indicated, and the means of determining the stage settled, so that disputes as to when a licensee is entitled to take water cannot arise, and at the same time under the system of granting licences against the three stages, viz: low water, high water and flood stage, it is possible to grant titles to all the flow of water available for diversion without prospect of a dispute between the holders of such titles.

The second point referred to opens up a subject which has been prolific of much discussion and controversy in all irrigation countries, which may be summarised as follows:

Shall water diverted for irrigation be an appurtenant of the land for which it is originally diverted, or a movable right available for use anywhere?

The licence issued under the Canadian Irrigation law answers this question in the plainest terms by providing that the water granted is granted for the irrigation of a defined area as shown by the memorial, maps and plans of record, and not as a right to be used anywhere the licensee may see fit.

In this connection it may not be out of place to refer to some criticism of the above provisions of the Canadian law contained in the exceedingly valuable report on "Water Rights on the Missouri River and its tributaries" contained in Bulletin No. 58 of the U. S. Department of Agriculture.

The author of that report, in speaking of the amount of the appropriation authorised by the Canadian law, states "The amount of the appropriation is "limited by the capacity of the works, which is determined by an inspection "ordered by the Minister of the Interior, and the report of this inspector is made "conclusive. This is believed to be a mistake. The experience of the arid States "of this country has shown that making the ditch builder the appropriator of "water does not afford sufficient security to the user. It is not the ditch builder "who makes the principal return nor whose interests are of enduring moment; "it is the man who reclaims the land and makes his home thereon who should "receive the first consideration of the law makers who deal with the subject. "Making ditch builders or canal companies the appropriators of water threatens "to put users of water from those canals under a perpetual mortgage to them."

The foregoing criticism is, it is thought, based upon a wrong interpretation of the Canadian law. That law, in common with the laws of both Wyoming and Nebraska, provides that the application to appropriate water must describe the ditch or canal through which the water is to be diverted and the lands to be irrigated by the water granted.

The Canadian law provides (Section 24 of the Act) for an inspection by the chief engineer upon the expiration of the time granted for construction of the ditch or canal and the issue of a certificate by him that the completed works are capable of carrying a stated quantity of water, upon that certificate the licence is based, but the law further provides (Section 26) that should it be subsequently found that the works will not carry the quantity of water granted the right shall be limited to the quantity which the works will carry. These provisions must be interpreted in connection with other provisions of the law and the regulations prescribed thereunder.

In the first place it should be noted that water granted is granted for the irrigation of a specified area and, as already explained, the applicant for the water is required to file his contracts or agreements with the users owning this land, if it is not his own property, before the licence issues.

It should also be explained that under the Canadian law the irrigation season and the duty of water are both fixed by the Minister, and the amount of water granted is based upon the ratio between the acreage to be irrigated and the water provided by the "duty" as being necessary to irrigate that area. The quantity of water which a user (or more properly speaking, a definite area) is entitled to get being fixed at the time of the final inspection by the chief engineer, he must be guided by the contracts and agreements filed, in issuing his certificate, and if his inspection proves that the ditch or canal as constructed will not carry a sufficient quantity of water to enable the owner to fill his contracts in accordance with the duty of water laid down by the regulations he has to see that contracts for lands which cannot be supplied are cancelled before issuing a certificate upon which the water for lands that can be served is granted. This system it is thought provides the most ample protection to the user, and although the ditch or canal owner is admitted to be the appropriator his appropriation is limited strictly to the proper quantity required for a specified area, and the owners of that area protected in their right as acquired through the appropriation filed by the ditch owner.

The provision of the law for revision of the rights acquired can only be brought into force as an appeal from the first certificate issued as to capacity of the canal or ditch and the procedure for a second inspection and certificate cannot damage the rights of the user as the law further provides (Section 35) that if a licensee cannot supply all the water agreed to be delivered each user must get his proportionate share, enforcement of this provision being exacted by a heavy fine or imprisonment or both. Under the Wyoming law the certificate of appropriation is based upon the evidence given by the appropriator and a recommendation from the Superintendent of the Water Division within which the works are situated, based upon an inspection made by a qualified person. This certificate authorises the appropriation of a definite quantity of water for the irrigation of a defined area. Under the Nebraska law the appropriation is limited to a definite quantity of water for a specified area reclaimed on a fixed date and provision is made for the proper record of a certificate defining the quantity of water duly appropriated.

Both of the latter laws differ from the Canadian law in procedure only, as the area of land reclaimed is made the basis of the water granted, but under the Canadian system it is further provided that the ditch through which the water for irrigation of this area is to be carried must be of sufficient size to carry this water and the right is attached to the land as an easement through such ditch.

The provision in the Canadian law for cancellation of the licence illustrates one of the marked points of difference between that law and American laws relating to irrigation. Under most of the latter laws the forfeiture of right for nonuser or failure to comply with other provisions of the law must be enforced by a legal process which is capable of long and vexatious delays. The Canadian law on the other hand having provided for the issue of a document which is *prima facie* evidence of title, also provides the simplest and most effective machinery for cancellation of the title for cause, and the result is that while the owners of water rights who live up to the provisions of the law receive ample protection in the enjoyment of these rights, without having to resort to the courts to have them defined or enforced, such a thing as maintaining a right to water unless its beneficial use is continued is not possible.

The provisions of the law relating to priority of right among the holders of licences and for the summary settlement of disputes between licensees will be readily understood by reference to the particular section of the Irrigation Act relating to this matter, which reads as follows: "Licensees shall have "priority among themselves according to the number of their licences, so "that each licensee shall be entitled to receive the whole of the supply to which "his licence entitles him, before any licensee whose licence is of a higher number "has any claim to a supply; and if a complaint is made to the Minister, or to an "officer authorised by him to receive such complaints, that any licensee is receiving water from a source of supply to which another licensee is entitled by "virtue of priority of right, and that the licensee having such priority of right "is not receiving the supply to which he is entitled, some officer to be named by "the Minister or the officer to whom complaint is made, as the case may be, shall "enquire into the circumstances of the case, and, if he finds that there is ground "for the complaint, shall cause the headgates of the ditch or other works of the "licensee who is receiving an undue supply of water to be closed, so that the "supply to which the other licensee is entitled shall pass and flow to his works."

Having dealt with the procedure relating to the initial acquirement of water rights it may be of interest to note briefly the system and forms adopted for transfer of title to the whole or any portion of the right.

Provision is first made for the transfer of the whole right covered by an application during the period of acquirement, or before the issue of the licence. This provision is necessitated by the fact that change of ownership may occur during the period granted by the authorisation for the completion of the construction of the works for the utilisation of the water applied for.

After the issue of the licence it may be wholly or partly transferred by use of the simple form printed on the back, and the record of this transfer having been effected, upon payment of a small fee, the transferee obtains a new licence in his own name. This simple system of transfer resembles the Torrans Land Title system in force in the North-West Territories, and has the further advantage that the licence is *prima facie* evidence of title.

The matter of the title of those who purchase water for irrigation from the holder of a licence is important to the actual irrigator, and is dealt with in the following manner. It will be noted that the holder of a licence may come within any of the following classes:

(*a*) The individual who acquires a licence for water for the irrigation of his own land only.

(*b*) The individual, or possibly association of individuals as a partnership, who acquire a licence for the irrigation of their own and neighbour's lands.

(*c*) The company duly incorporated for the purpose of acquiring a licence for water for the irrigation of large areas, of which, in many cases, they may own only a portion.

(*d*) The Irrigation District organised under a special law for the irrigation of land as a municipal undertaking.

All these cases are dealt with on the same basis up to the time of the issue of the licence and the applicants must before that time have proved their title to the land for which the water is granted. The character of the title to be proved differs, however, materially in each case.

In cases which come under the heading (*a*) the applicant is required to hold the land to be irrigated in fee simple, or under a homestead entry, or lease from the Crown, or an agreement for purchase with one of the railways or other land owning companies.

The title in class (*b*) is somewhat more extended and it is sufficient for the applicants to prove title to the land they personally hold under titles outlined in class (*a*) and to file agreements for the use of water with the owners of the additional lands to be irrigated from their ditch or canal.

The larger projects comprised under class (*c*) are again dealt with under a different system. The corporate bodies comprised within this class are given, by the law bringing them into existence, the right to acquire water for the irrigation of large areas without it being necessary that they should own any large portion of this area. In practice it has, so far, been found in Canada that as a business venture irrigation companies are not a success unless the company owns the larger part of the land to be irrigated, and can realise from this land the increased value resulting from bringing it under a ditch or canal. In dealing, however, with these cases it is required that during the period granted them for completion of their scheme that they should record agreements for the sale or use of water covering the total area to be irrigated. The form of agreement will, it is thought, show, if read in conjunction with the provisions of the law and regulations, that the purchaser of a water right from a company has a good title to the water purchased, and is granted the same protection in the enjoyment of his title as is given the holder of the licence constituting the basis of the title.

As bearing upon the terms of these agreements it may be pointed out that the regulations prescribed under the Act provide, among other things, that the agreements must be recorded in the same central office of record from which the licence issues; the duty of water which governs the quantity to be delivered is fixed, not by the irrigation company or water user, but by the Government; the water delivered under the agreement must be measured by a device approved by the Government; the irrigation season is fixed by the Government; a company attempting to enter into an agreement to supply more water than their canal will supply shall be punished by a heavy fine; and that disputes between the company and user as to quantity of water delivered are settled by Government officials, without recourse to the courts.

The title of users of water under class (*d*) is again dealt with in a manner different to cases comprised within classes (*a*), (*b*) and (*c*).

In this instance the districts acquiring a licence is simply holding it in trust for the land owners comprising the districts, and as under the Irrigation District law, referred to more fully further on, all the irrigable land in the district must use and pay its share of the water tax no special agreements are entered into between the district and owners of irrigable land, and before issuing his certificate for the licence the chief engineer has only to satisfy himself that the works as constructed will carry sufficient water to enable all the irrigable land in the district to get its share, the title of this land to the water being defined by the law creating the district.

There are in addition to the foregoing many other general provisions of the Canadian Irrigation law which are deserving of consideration, but the main features bearing upon the title to water acquired under the Act have been dealt with, and the remaining points may be noted by those interested in the matter from a consideration of the law itself.

Before concluding, however, it is necessary to refer to the second law mentioned in the opening paragraphs of this discussion, The North-West Irrigation District Ordinance

This enactment has in view the introduction of irrigation works as municipal undertakings, and is based on the principle that an irrigation canal constructed for the reclamation of any area should be held in common by the owners of the lands to be irrigated.

The Ordinance provides that by petition addressed to the Lieutenant Governor in Council, two-thirds of the owners in any specified area may secure the erection of such area into an Irrigation District, and proceed to elect from among themselves a Board of Trustees to manage the affairs of the district. Notice of the application for erection of the district must be given in a local newspaper and proper evidence furnished as to the *bona fides* of the signers of the petition.

The district being properly formed, they then proceed to make application under the Irrigation Act for a water right in exactly the same manner as an individual or company, and their application is subjected to the same scrutiny to determine the feasibility of the scheme and the ability of the district to carry it out.

If the application for a water right is granted, the district proceeds to raise the necessary money for the construction of the proposed works by the sale of debentures based upon the land comprised within the district as security, but must first obtain the approval of the Lieutenant Governor in Council to the proposed debenture issue. Having secured the necessary money, the works are constructed under the same conditions as to inspection and approval by the chief engineer as are enforced with regard to private or other corporate irrigation works, and, after completion, the canal is managed and maintained by an annual tax upon the irrigable land in the district sufficient to pay the cost of management and maintenance, and provide a sinking fund to redeem the debentures.

It should be noted in connection with this law that the same scrutiny and care is exercised in the formation of the district and the acquirement and exercise of its water right that is exercised with regard to private or other corporate rights acquired under the Irrigation law, and although this "paternalism" may be repugnant to those who think that individuals or corporations should be left alone in exercising their right to participate in what is considered public property, it will probably be admitted by those acquainted with the facts that more of the paternal spirit in dealing with the all important subject of water rights in arid or semi arid countries would be conducive of better results.

There is one provision of The Irrigation District Ordinance which is deserving of special notice because its enforcement has had the result of enabling Irrigation Districts in Canada to dispose of their debentures at a price above par, and it effectually prevents anything like speculation in the organisation of districts, or investment in their debentures except as purely interest bearing securities. The provisions referred to provide a practical guarantee by the Government of the debentures of which a district is authorised to sell, and contain the law, unique on this continent, that if the land owners of the district neglect to pay the tax imposed for the management and maintenance of their irrigation works and to provide a sinking fund to pay off the debenture indebtedness the Government pay these taxes and take the lands.

The practical result of this provision is that the district is absolutely sure of its revenue for management and maintenance, and the debenture holder of his interest and principal, while those who might be disposed to "boom" the formation of irrigation districts in the speculative hope of obtaining cheap land, have certainly very little encouragement to indulge in such enterprises.

GENERAL REMARKS REGARDING DEPARTMENTAL WORK DURING THE PAST YEAR.

The information contained in the preceding pages will serve to indicate in a general way the work which this Department is now charged with, the rapid growth in many branches of our work, and the proportions to which it has now grown.

Several of the branches of our work are deserving of more extended notice than has been given them, but the facts quoted will serve to illustrate in a general way the administrative system adopted in dealing with the many matters requiring attention.

There are, however, certain general remarks which apply to the work of the Department as a whole to which I would respectfully direct attention.

First in importance is the question of staff.

It will be noted from the details previously given of the staff of each branch that the inside staff of the Department at present stands as follows:

Correspondence branch	6
Accountant's branch	2
Surveys' branch	3
Engineering branch	2
Local Improvement branch	7
Irrigation branch	5
Total	25

That the mass of work of which details have been given was handled by the above mentioned staff is, I think, a matter for pride, but I would point out that the result was only obtained by incessant and almost never ending work, requiring an effort which cannot and should not be expected from the staff except at times of rush or special pressure.

It should also, in considering this matter, be noted that the administration cost of the Department last year was reduced to the low figure of 3.86 per cent. of the amount handled by the Department during the year. That fact of itself conclusively shows that we are doing our Departmental work for a cost for staff far below what is looked upon as a fair charge for administration cost in Government Departments or under municipal administration elsewhere in Canada.

In view of the foregoing facts I would recommend that the staff in the Correspondence, Surveys, Engineering and Local Improvement branches be increased during the coming year.

In the Correspondence Branch a re-arrangement of the work should be made so as to permit of the chief clerk in that branch having charge of a large portion of the routine correspondence which now has to be handled by the deputy head. To enable this to be done an additional clerk will be required in that branch.

In the Surveys Branch a draughtsman is badly needed. We have a large amount of plan work to do in that branch, which, with the present staff, it is impossible to keep up with. The plan and map work will rapidly increase and the services of a good draughtsman should be obtained to enable us to keep up with that work.

In the Engineering Branch an assistant engineer is required who can take charge of, during construction, some of the larger bridge or drainage works that we have on hand, and to which it is impossible, under present conditions to give the supervision that their importance warrants.

In the Local Improvement Branch two (2) additional clerks are required. The work of assessment and collection of taxes in the large districts, when added to the administration of the small districts and the Village and School Assessment Ordinances, has overloaded this branch with work. It will be noted from the statement already given that the total cost of assessment and expenditure of taxes in the Large Local Improvement Districts last year, including the cost of outside supervision of the completion of works, was less than 5 per cent. of the amount expended. It is, therefore, evident that an increase in the staff of the Local Improvement Branch can be made without any danger of increasing the percentage of cost of administration beyond reasonable limits.

The second feature of our Departmental work as requiring reference has relation to the outside staff. In this connection I would point out that it is very necessary that the present number of district surveyors and engineers should be increased by providing an additional surveyor and engineer in Alberta. We are at present quite unable to keep up with the necessary work in that district, and there is no doubt that the service would be improved by the employment of an additional official.

It is also desirable that our staff of local inspectors, particularly within the large Local Improvement Districts, should be largely increased so as to provide for the proper supervision of the large mass of work that we will have in hand in these districts, without requiring that any individual inspector should have to go long distances from home in making his inspection,

In connection with our well boring operations, which comprise a large portion of the work in the eastern portion of the Territories, it is strongly recommended that during the coming year the services of Mr. William Duff, the Inspector, be utilised wholely for the purpose of superintending general operations and making inspections. During the past year Mr. Duff endeavoured to combine his superintendence and inspection with the operation of one of our new machines, but results clearly proved that the work cannot be handled satisfactorily in that way, and that his whole services should be devoted to looking after the eight machines while in operation.

With the above mentioned additions to the inside and outside staff, and alterations in our method of performing work, it is expected that we will be able to satisfactorily cope with the large mass of work which the rapid development now taking place in the Territories indicates will fall upon the Department during the coming year.

In concluding I desire to take this opportunity of expressing to you, and putting upon record, my appreciation of the faithful service rendered by every member of the staff of this Department during the past year, and their readiness at all times to work long hours in the effort to keep up with the press of current business.

Your Obedient Servant,

J. S. DENNIS,

Deputy Commissioner.

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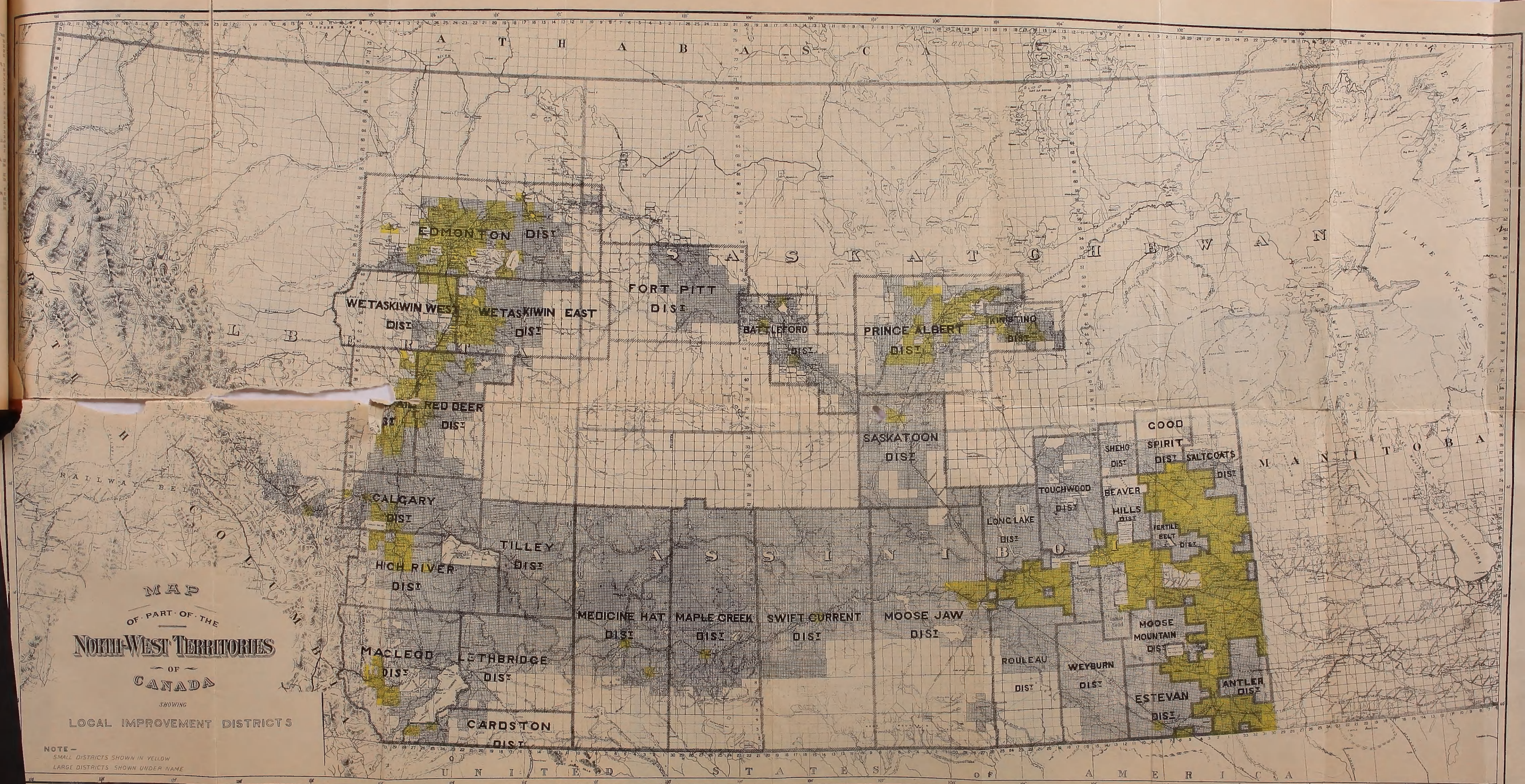

MAP
OF · PART · OF · THE
NORTH-WEST TERRITORIES
OF
CANADA
SHOWING
LOCAL IMPROVEMENT DISTRICTS

NOTE —
SMALL DISTRICTS SHOWN IN YELLOW
LARGE DISTRICTS SHOWN UNDER NAME

THE STOVEL COMPANY, LITHOGRAPHERS, PRINTERS, & PUBLISHERS.
WINNIPEG MANITOBA.